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**A THEORETICAL FRAMEWORK FOR TURNOVER INTENTION OF AIR  
FORCE ENLISTED INFORMATION SYSTEMS PERSONNEL**

**THESIS**

**Dan W. Smith, Captain, USAF**

**AFIT/GIR/ENV/03-17**

**DEPARTMENT OF THE AIR FORCE  
AIR UNIVERSITY  
*AIR FORCE INSTITUTE OF TECHNOLOGY***

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**Wright-Patterson Air Force Base, Ohio**

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

The views expressed in this thesis are those of the author and do not reflect the official policy or position of the United States Air Force, Department of Defense, or the U. S. Government.

**A THEORETICAL FRAMEWORK FOR TURNOVER INTENTION OF AIR  
FORCE ENLISTED INFORMATION SYSTEMS PERSONNEL**

THESIS

Presented to the Faculty

Department of Systems and Engineering Management

Graduate School of Engineering and Management

Air Force Institute of Technology

Air University

Air Education and Training Command

In Partial Fulfillment of the Requirements for the  
Degree of Master of Science in Information Resource Management

Dan W. Smith, B.S.

Captain, USAF

March 2003

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FORCE ENLISTED INFORMATION SYSTEMS PERSONNEL**

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Dan W. Smith

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### Abstract

Retention of valuable information systems (IS) personnel has become increasingly more difficult over the past decade, even during the current economic downturn (ITAA, 2002). The United States Air Force (AF) also suffers from declining retention of its enlisted IS workforce. This research studies the job satisfaction-to-turnover intention relationship of AF IS workers through extensions to the Mobley et al. (1979) turnover model by assessing the effects of work exhaustion (Moore, 2000), interrole conflict (Hom & Kinicki, 2001), and perceived cohesion (Bollen & Hoyle, 1990) to determine if those with high work exhaustion, high interrole conflict, and low perceived cohesion report lower satisfaction and higher turnover intention than those with low work exhaustion, low interrole conflict, and high perceived cohesion. Current archival data from a portion of the AF IS workforce (AFSCs 3C0X1, 3C0X2, and 3C2X1; N = 10,535) was obtained from the AF Occupational Measurement Squadron that resulted in 2,510 usable responses. Partial support was found through contingency table analysis showing that job satisfaction is positively influenced by lower levels of work exhaustions and interrole conflict, and higher levels of perceived cohesion. Further research should be conducted to refine the posited turnover model for possible use throughout the AF, and should explore other contributing factors that adversely affect the job satisfaction-to-turnover intention relationship.

# A THEORETICAL FRAMEWORK FOR TURNOVER INTENTION OF AIR FORCE ENLISTED INFORMATION SYSTEMS PERSONNEL

## **I. Introduction**

### **Overview**

The study of voluntary employee turnover has stirred a great deal of interest in recent years in both the academic arena and in the practitioner world. Information technology (IT) workers, in particular, suffer from high voluntary turnover rates (Chao, 2002; Information Technology Association of America, 2002); hence, it is crucial to identify and manage causal influences that lead to lower job satisfaction, and, consequently, higher levels of turnover intentions, in order to retain valuable IT workers. The United States Air Force (AF), like the civilian sector, suffers from high voluntary turnover levels of its IT workers; thus, it is of interest to the AF to identify and manage factors that lead to the voluntary loss of its IT personnel.

### **Problem Statement**

Voluntary turnover of AF enlisted Information Systems (IS) personnel is a major concern (HQ USAF, 2002). Current retention techniques do not appear to be having the desired outcomes; hence, leaders at all AF levels may not have appropriate or effective retention tools available to them. Service leaders can more effectively manage both scarce financial resources and enlisted retention issues if the causes and relationships of turnover intention and its causal factors can be understood.



Air Force overall enlisted retention figures are low, and the AF IS career field retention rates are consistently lower than the service's average, as will be discussed later in this chapter. The problem the AF is experiencing is similar to the trend of IS retention problems as noted in the literature. It seems that within the information technology (IT) arena, rapid change and smaller work staffs have become the rule rather than the exception (Kickul & Posig, 2001), and increased employee turnover of valued IS professionals has resulted. For example, a consistent 50 percent gap exists in the supply and demand of IT professionals due to plentiful jobs and a shortage of qualified IS workers, even during the present economic downturn (Bijleveld, Andries, & Van Rijckevorsel, 2000:126; Chao, 2002; Information Technology Association of America, 2002:6). The Information Technology Association of America (ITAA) reports that of the projected IT worker demand of 1.15 million positions in corporate America within the next 12 months, almost 600,000 positions will go unfilled due to a lack of qualified workers. Further, according to ITAA, the projected demand for IT positions in 2002 was 27 percent higher than 2001 demand levels (ITAA, 2002). Because previous experience was rated as the most desired credential for employment by ITAA survey respondents, it is reasonable to speculate that AF IS enlisted professionals, who probably have between three and ten years of experience and are facing either their first or second reenlistment decision, are prime recruiting targets for corporate headhunters seeking to fill those jobs that lack qualified applicants.

Further, Moore (2000), in her research studying work exhaustion among IS professionals, points out that despite the phenomenal expansion of IT infrastructure into the corporate environment, there has not been a corresponding increase in the size of the

IS talent pool; hence, IS workers have elevated leverage in the marketing of their skills. Trevor (2001) termed this concept “movement capital” (p. 621). For example, in the corporate world, an employee who quits without proper notice or procedure might receive a pejorative reference for such action; however, such reference may be deemed irrelevant by a potential employer seeking talent in a tight labor market.

## **Background**

Certainly, the military lifestyle and its unique demands are not for everyone who initially enters active duty service; hence, some turnover in the military, whether initiated by the employee or employer, is desirable for both the military service and the military member. In the AF, the term retention is used to indicate voluntary turnover, and is reflected by reenlistment rates, as noted previously. As to how or how much voluntary military turnover compares to civilian voluntary turnover is not known, but the present effort examines turnover theory in an attempt to synthesize a model that might help identify relationships between theorized constructs and turnover intention.

One of the classic turnover models used in the literature is the model proposed by Mobley, Griffeth, Hand, & Meglino (1979), presented in Appendix A. The Mobley et al. (1979) model, consistent with the literature, uses the concept of turnover intention as a predictor for actual turnover (e.g., Golembiewski, Boudreau, Sun, & Luo, 1998; Hom & Kinicki, 2001; Igbaria & Guimaraes, 1993; Igbaria & Guimaraes, 1999; Lee & Mowday, 1987; Mobley et al., 1979; Moore, 2000; Spector, 1997). Mobley and his colleagues base their model on turnover intention causal influences mediated by job satisfaction; these causal factors are divided into individual, organizational, and economic/labor market

factors (Mobley et al., 1979). Individual factors include elements such as interests, personality, aptitude, family responsibility, and demographic elements such as age, gender, education, length of tenure, and socio-economic status. Organizational factors are those elements inherent to a work environment such as working conditions, climate, size, job content, goals and values, policies and procedures, pay, promotion, peer relations, and supervision. Economic and labor factors potentially mediate the ease of movement to another job for the employee based on perceptions of alternative job possibilities, unemployment rates, job vacancy rates, word of mouth, level of recruiting, and communication (Mobley et al., 1979).

Mobley et al. (1979) expressed concern that turnover models consistently explain less than 16 percent of the variance in the job satisfaction to turnover relationship, and called for researchers to extend the model with new variables (p. 495). One such extension is the expanded Hom-Griffeth turnover model (Hom & Kinicki, 2001), itself an extension of Hom and Griffeth's turnover model (1991). Hom and Kinicki's (2001) construct of interrole conflict, which they describe as friction between competing demands of nonwork demands and work demands, is integrated into the present research's theoretical framework.

The demand for IT workers has been established earlier in this chapter. Researchers have found significant stress levels placed on the remaining, short-staffed IT workforces (e.g., Bijleveld et al., 2000; Huarng, 2001; Li & Shani, 1991; Moore, 2000; Sonnentag, Brodbeck, Heinbokel, & Stolte, 1994). These stress levels have been observed in the literature as job burnout, or work exhaustion, which is described as "a psychological syndrome in response to chronic interpersonal stressors on the job"

(Maslach, Schaufeli, & Leiter, 2001:399). As Taris, Schreurs, and Schaufeli (1999) point out, the focus on burnout investigation has shifted to measurement of the conditions of work itself, not the intensity of interactions with people, whether coworker or customer. Hence, the framework being developed in the present study to assess the work exhaustion phenomenon with the AF IS profession focuses upon work-related antecedents thought to induce work exhaustion.

The last theoretical extension posited by the present research is an interaction between perceived cohesion and job satisfaction-turnover intention. Cohesion in small groups may be the most important group element variable that holds the members together as a unified whole (Bollen & Hoyle, 1990:483). Carron's (1982) definition of cohesion, "the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (p. 124), captures a critical element present for the context of military group cohesiveness: individuals comprising military groups are expected to place self-interests aside in favor of group goals that may well include participation in life-threatening activities.

However, Bollen and Hoyle (1990) conclude that there is little agreement among researchers as to the conceptualization, definition, and measurement of cohesion (pp. 480-482), and further claim that "...there exists no "true" definition of cohesion" (p. 482). Hence, they explore perceived cohesion, which they describe as "*an individual's sense of belonging to a particular group and his or her feelings of morale associated with membership in the group*" (p. 482; italics in original). Bollen and Hoyle choose to view perceived cohesion from a Festinger-like viewpoint (1950:274) as an independent construct, i.e., as the resultant of whatever forces may exist to create their two-

dimensional concept (p. 483). For the present effort, it is posited that perceived cohesion among AF IS personnel is a dependent construct based upon the influence of causal factors, and is defined in terms of morale or its synonym, *esprit de corps*, which is consistent with Sarkesian's (1980) view that, "Unit cohesion, in the most simple terms, is *esprit de corps*" (p. 11; italics in original). Hence, based upon the urgings of researchers to further explicate a cohesion framework, and considering the archival data available to the researcher in light of the literature, the causal factors that will be investigated are stability, location, military related education and training, unit readiness, unit resources, and leadership.

### **Research Objectives**

The primary objective of this research is to develop a military-context turnover intention model applicable to the population of interest, and, potentially, to other military career fields as well. A secondary objective is to compare Air Force-theorized separation factors, present in the archival data available to the researcher, against the literature to try to evaluate the various Air Force-predetermined separation factors for validity.

### **Research Questions**

In order to achieve my research objectives, I must answer the following research questions:

- 1) Can an appropriate turnover model for enlisted AF IS personnel be theorized by synthesizing elements of extant turnover models?
- 2) Does the Air Force Occupational Measurement Squadron's (AFOMS) enlisted career field survey instrument adequately capture separation factors?

## **Summary**

This chapter presented the AF IS personnel retention problem and provided an overview of turnover and job satisfaction as a contextual framework for the present research. The next chapter examines the literature for turnover and job satisfaction factors. Specific hypotheses will then be proposed in context of job satisfaction and turnover factors. Chapter three discusses the archival data used for this effort and their characteristics, and presents the research methodology used. The results of the data analyses are presented in chapter four, and, finally chapter five discusses the results of the research, implications, and suggestions for future research.

## II. Literature Review

### Overview

This chapter first presents the concept of turnover based on literature reviews of the classic Mobley et al. (1979) turnover model and the more contemporary Hom and Griffeth expanded turnover model (Hom & Kinicki, 2001). Next, the work exhaustion literature is reviewed to assess the role job burnout plays in the turnover process. A review of cohesion then follows with a particular emphasis on Bollen and Hoyle's (1990) concept of perceived cohesion. Finally, a discussion of the population of interest is presented. Results of the review provide a contextual framework for presenting an integrated model to measure turnover intention in United States Air Force (AF) Information Systems (IS) professionals.

### Turnover Theory

Employee turnover is defined as *“the cessation of membership in an organization by an individual who received monetary compensation from the organization”* (Mobley, 1982:10; italics in original). Further, turnover is distinguished by the type of the turnover, voluntary (employee-initiated) or involuntary (organization-initiated, death, and mandatory retirement) (Mobley, 1982:11). The high rate of voluntary turnovers, or quits, in the IS profession has received considerable attention in both the literature and the popular press (e.g., Baroudi, 1985; Bijleveld, Andries, & Van Rijckevorsel, 2000; Copeland, 2002; Dash, 2002; Gomolski, 2002; Harris, 2000; Huarng, 2001; Li & Shani, 1991; Moore, 2000; Sonnentag et al., 1994; Surmacz, 2002a, 2002b). However, not all

quits are undesirable—in fact, turnover can have positive organizational effects such as the removal of poor performers, advancement opportunities for talented replacements, and decreases in pre-turnover withdrawal behaviors such as absenteeism, apathy, sabotage, and poor work quality (Mobley, 1982).

It is important to note that military employment differs from private-sector employment in a couple of key respects. First, in the corporate world, an IS worker has more flexibility and may generally leave his or her job for another job at any time; military members, in contrast, do not have the same flexibility to seek employment elsewhere except at the end of their enlistment period. Second, the term retention as used in a military context requires explication. Enlisted members serve under contract terms. The initial enlistment period for first-term enlistees is normally between four and six years. Second-term enlistees have entered their second contract of enlistment, normally for an additional period of four to six years. Any subsequent enlistment is defined as a career enlistment. Further, not all airmen are eligible to reenlist; some are involuntarily separated for administrative or punitive reasons, and some are denied a reenlistment opportunity for various reasons such as poor performance or failure to maintain standards, such as the weight management program.

Certainly, the military lifestyle and its unique demands are not for everyone who initially enters active duty service; hence, some turnover in the military is desirable, whether initiated by the military member or by the AF. In the AF, the term retention is used to indicate voluntary turnover and is reflected by reenlistment rates, defined as the percentage of actual reenlistments versus the number of reenlistment-eligible personnel. Keep rate is defined as the percentage of the number of reenlistments from the number of



all non-reenlistees to include those who retired, died on active duty, or were separated due to reenlistment ineligibility (e.g., discharged for administrative reasons, etc.) (HQ USAF/DPFMA, 2002a, 2002b). The present study uses reenlistment rates instead of keep rates since the focus of AF retention efforts are to retain only reenlistment-eligible personnel.

The problem of turnover of United States Armed Forces enlisted personnel is not a new problem. Nearly a half-century ago, at the signing of a public bill authorizing increases in the amounts of reenlistment bonuses, President Dwight Eisenhower remarked that the low rate of reenlistments was “the weakest aspect of our national defense” (Eisenhower, 1954). His sentiment captures perhaps the most important and yet least quantifiable aspect of military turnover—mission readiness (Sarkesian, 1980; Sorley, 1980). The voluntary turnover problem is also not just an old problem. General John P. Jumper, the current Air Force Chief of Staff, echoes Eisenhower’s concern about mission readiness and retention of enlisted personnel:

We are serving the Air Force during a pivotal time in our nation’s history....We also are committed to increasing our *readiness* levels by giving our airmen the resources, facilities, equipment and strong leadership they need to get the job done. Moreover, we will focus on the retention of our airmen—they are the heart and soul of the Air Force, they need to know that their service matters, and we are committed to giving them a higher quality of service and a higher standard for life. (Jumper, 2002:4; italics in original)

There are tangible ramifications of voluntary turnover as well, direct costs which make it hugely expensive at an estimated range of between five and twenty-five times the cost of the replaced employee’s monthly salary. Such costs include separation-related costs, advertising, recruiting, interviewing, evaluating new personnel, formal and on-the-

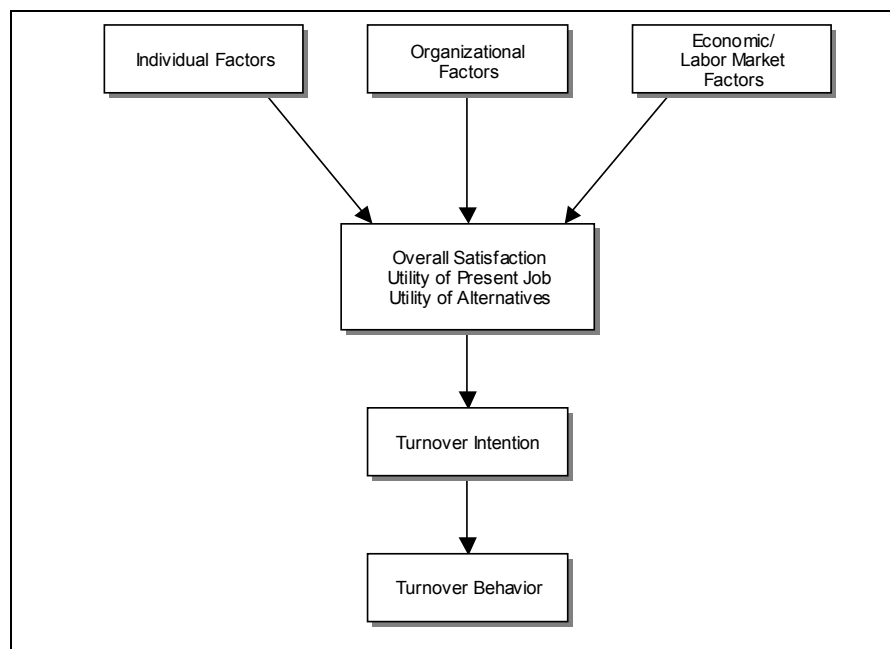
job training, medical costs, costs of lost productivity, and the months required for integration, or socialization, of the new employee into the new job culture (Lawler, 1986:33; Tziner & Birati, 1996:114). The AF incurs all of these types of direct turnover costs, and perhaps even greater socialization costs than corporate America since military members typically transfer from unit to unit and from base to base every few years. Additionally, there is another significant direct cost to the AF even though it would be difficult to quantify in financial terms: career advancement within the AF organizational structure is a hire-from-within system, so the pool of qualified candidates shrinks for each progressively higher rank. Why is this so expensive? As one senior noncommissioned officer remarked to the author several years ago, “For every twelve-year staff sergeant who separates, it takes a twelve-year staff sergeant to replace him [or her]” (Maywald, 1993).

Since a goal of turnover research is to reduce the occurrence of voluntary employee turnover before it occurs, I use the concept of turnover intention as a predictor for actual turnover which is consistent with the literature (e.g., Golembiewski et al., 1998; Hom & Kinicki, 2001; Igbaria & Guimaraes, 1993, 1999; Lee & Mowday, 1987; Mobley et al., 1979; Moore, 2000; Spector, 1997). The Mobley et al. (1979) turnover model is one such example that has been much researched.

#### **Mobley et al. Turnover Model.**

Figure 1 depicts a simplified Mobley et al. turnover model, as presented and researched by Wynne (2002), based on Mobley et al.’s (1979) full model as presented in Appendix A.

According to Mobley et al. (1979), organizational factors are inherent to any work environment and include such elements as working conditions, climate, size, job content, goals and values, policies and procedures, pay, promotion, peer relations, and supervision. This assessment is supported by Spector (1997), who explains that organizational job factors “...includes [sic] how people are treated, the nature of job tasks, relations with other people in the workplace, and rewards” (p. 30). Economic and labor-market factors potentially mediate the ease of movement to another job for the employee based on perceptions of alternative job possibilities, unemployment rates, job vacancy rates, word of mouth, level of recruiting, and



**Figure 1: Wynne's Simplified Mobley et al. Turnover Model**

communication (Mobley et al., 1979). Mobley et al. (1979) present individual factors as two major types, occupational and personal. Individual-occupational factors include hierarchical level, skill level, status, and professionalism, and individual-personal factors include demographic elements such as age, gender, education, length of tenure, and

socio-economic status. Mobley et al. also include in the individual-personal subcategory affective, or perceived, qualities such as interests, personality, aptitude, and family responsibility. Spector (1997) describes individual factors simply as a combination of the worker's personality and prior experiences (p. 30).

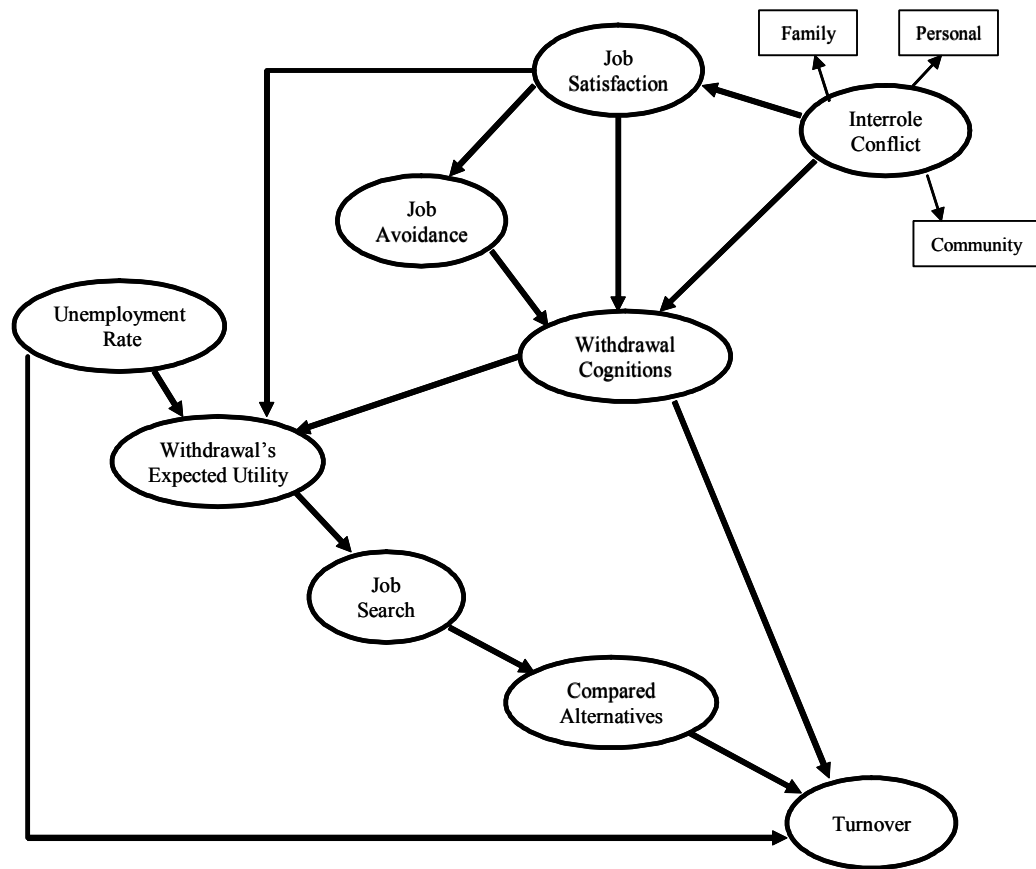
As shown in the model, turnover intention is thought to be negatively related to job satisfaction, and, of particular note, that two general categories are theorized as the primary antecedents of job satisfaction: environment and individual factors (Lee & Mowday, 1987; Motowidlo & Lawton, 1984; Spector, 1997). Hence, the bulk of the literature theorizes that manipulation of job satisfaction antecedents should increase employee satisfaction, thereby decreasing turnover intention and, necessarily, actual voluntary withdrawal behavior. Another model exploring the role of job satisfaction antecedents is the expanded Hom-Griffeth turnover model (Hom & Kinicki, 2001).

#### **Expanded Hom-Griffeth Turnover Model.**

Mobley et al. (1979) expressed concern that turnover models consistently explain less than 16 percent of the variance in the relationship between job satisfaction and turnover, and called for researchers to extend the model with new variables (p. 495). One such extension is the expanded Hom-Griffeth turnover model (Hom & Kinicki, 2001), itself an extension of Hom and Griffeth's turnover model (1991). The expanded model is presented below in Figure 2. Hom and Kinicki's extension was an attempt to more fully develop the intermediate antecedent linkages, thereby providing management with more intervention focal points to "short-circuit" the turnover process at specific points (p. 975).

Hom and Kinicki's model adds three new constructs to the Hom-Griffeth model: unemployment rate, job avoidance, and interrole conflict. The first new variable,

unemployment rate, was assessed by Mobley et al. (1979) as a “conceptually crucial variable” although they viewed it as an indirect moderator of turnover (p. 504). Hom and Kinicki, on the other hand, theorize both an indirect and a direct relationship with turnover for three reasons: 1) economic prosperity motivates quits among those not contemplating it due to unsolicited or unexpected job offers; 2) in a tight labor market, and representative of Trevor’s (2001) concept of movement capital, employees can quit before actually securing a new job with the confidence that employment in a new firm will soon follow; and 3) companies may be more inclined to ease hiring standards and offer employment inducements, for example a signing bonus, in a tight labor market (Hom & Kinicki, 2001:979). Indeed, Hom and Kinicki’s findings suggested a direct relationship to turnover by finding that a mere one percent rise in the unemployment rate lowered voluntary quits by almost 12 percent (p. 983). Further, they found support for an indirect influence to turnover in that economic recessions appeared to moderate the withdrawal cognitions-to-withdrawal expected utility path, resulting ultimately in lower turnover (p. 984).



**Figure 2: Expanded Hom-Griffeth Turnover Model**

The second new construct is job avoidance, which Hom and Kinicki (2001) assess as having been present in the literature since March and Simon (1958) referred to “psychological quits” (p. 977). Job avoidance is described as a “family of functionally equivalent responses that distance employees from frustrating workplaces” (p. 976, summarizing Hanisch, Hulin, & Roznowski, 1998). Hom and Kinicki (2001) subcategorize job avoidance by four qualities: absent, effort, sick, and quality (p. 978). Although they do not provide specific definitions for these qualities, there is clear inference that employees suffering from low job satisfaction and with pre-quit intentions

will engage in dysfunctional work activities such as providing low-quality service, giving minimal work effort, being absent from work, and suffering from either real or imagined illnesses. Further, they speculate that management should try to address dysfunctional behavior through means other than punitive sanctions, at least initially, in order to avoid inadvertently elevating the employee's withdrawal cognitions which may lead to a heightened turnover intention (p. 978). The AF uses the technique of subordinate counseling as a crucial element in maintaining morale and discipline, and is intended to correct dysfunctional behaviors before they become more serious problems that might involve administrative or punitive action (Air Force Instruction 36-2907, 1997). Further, the AF requires supervisors to conduct periodic and documented one-on-one feedback sessions with all subordinates to assess performance and to identify perceived strengths and weaknesses (Air Force Pamphlet 36-2627, 1997). Together and separately, counseling and feedback serve first-line supervisors as a means of "short-circuiting" job avoidance behaviors.

The third variable that Hom and Kinicki (2001) added to the Hom-Griffeth model was interrole conflict, defined as a "collision between work and nonwork role demands" (p. 976, citing Kossek & Ozeki, 1998). This concept and definition is similar to Spector's (1997) concept of extra-work conflict, which he defines as "conflicts between work and non-work," with the most frequent type occurring between work and family (p. 39). Interrole conflict, which Hom and Kinicki view as an ignored construct of the major turnover models despite mounting evidence to the contrary (e.g., Bedeian, Burke, & Moffett, 1988; Greenhaus, Collins, Singh, & Parasuraman, 1997; Spector, 1997), is more

than just conflict between work and family; it encompasses work-community conflict and work-personal endeavor conflicts as well (p. 976, 981).

Further, interrole conflict—for example, unexpected job offers and pregnancy—may spontaneously induce withdrawal cognitions in satisfied employees through a “shock” effect, resulting in elevated turnover intention (p. 976). Supporting the interrole conflict assertion is Weiss, Nicholas, and Daus (1999) who found that elevated levels of work conflict (e.g., longer working hours) can result in an unacceptable balance between the levels of nonwork rewards and work rewards such that the employee’s foul nonwork attitude adversely affects his or her workplace attitude, resulting potentially in elevated quit intentions. Similarly, Bretz, Boudreau, and Judge (1994) found that employees perceiving an imbalance in work and family time or too little off-duty time for leisure pursuits may pursue another job simply to restore an acceptable balance in work-nonwork conflicts. In summary, one of Hom and Kinicki’s (2001) major findings is that interrole conflict happens to everyone whether married, unmarried, with or without children and can be significant (p. 984). As a result, they recommend that management provide remedies (e.g., nontraditional work schedules) to all personnel, not just to the married-with-children workers.

Military members perhaps must deal with interrole conflicts more than their civilian counterparts. For example, when a military member is reassigned to another base, his or her spouse may suffer dislocation from a highly satisfying job into unemployment until a new job can be secured in the civilian market at their new location. This pattern could conceivably repeat time and time again. Further, military members are bound contractually for long-term service and are never off-duty in the sense that they



can choose to not show up for duty, or work, or even for no-notice redeployment to another part of the world, when summoned. Consequently, military personnel with children must always have a means of providing support for their offspring—for example, a guardian—should the need arise.

### **Job Satisfaction.**

Job satisfaction is defined as how one feels about his or her job and its different aspects; it is generally expressed in relation to attitudinal characteristics (Spector, 1997:2). Igbaria and Guimaraes (1999), in a study exploring turnover among IS workers, cite “well-established relationships between job satisfaction, organizational commitment, and turnover intention,” and describe job satisfaction as the affective reactions of individuals to various facets of the job and job experience (p. 150). Baroudi (1985) remarks on the consistency with which both job satisfaction and organizational commitment appear to be determinants of IS personnel behavior.

However, Mobley et al. (1979) view job satisfaction as part of organizational commitment and that, of the two concepts, organizational commitment is “a more global evaluative linkage between the employee and the organization” (p. 508). Further, they say, “The more specific the [turnover] intention measure and the closer the person is to actually quitting, the more trivial the prediction [of turnover]” (p. 508). The reason Mobley et al. recommend specificity in the job satisfaction construct is that, even though support is consistently found for a job satisfaction-to-turnover intention causal relationship, research consistently explains only a small percentage of the variance (Griffeth et al., 2000; Lambert et al., 2001; Spector, 1997:62-63). As Mobley et al. phrase it,

[This review]...has repeatedly suggested that multivariate studies are necessary to interpret the relative efficacy of numerous variables and constructs thought to be related to turnover, to resolve apparently contradictory bivariate studies, to attempt to account for a greater proportion of the variance in turnover, and to move toward a more complete understanding of the turnover process. (p. 510)

Indeed, even though job satisfaction is perhaps the most studied turnover variable at the individual level, job satisfaction typically accounts for less than 16 percent of variance (Locke, 1976; Mobley et al., 1979); moreover, the global satisfaction construct consistently accounts for less than 14 percent of the job satisfaction-turnover relationship (Mobley et al., 1979:497).

Furthermore, according to Spector and as suggested by Mobley et al.'s turnover model, job satisfaction can be viewed as a global concept or as a "related constellation of attitudes about various aspects or facets of the job" (Spector, 1997:2). Spector views the global satisfaction concept as the "bottom line attitude" consisting of the aggregate of satisfactions and dissatisfactions from all job aspects, or facets. Facets, claims Spector, provide a more comprehensive picture of job satisfaction than does the global concept alone (1997:3), a view reinforced by Lamond, Spector, McDonald, Wu, and Hosking (2001:B1).

Justification for the facet research approach, then, is straightforward: despite the sheer volume of turnover studies, researchers continue to find causal support for a job satisfaction-to-turnover intention relationship, but with little of the variance explained (Mobley, 1982). As for mediating constructs leading to turnover intention, Spector's assessment is that although job characteristics do show correlation with job satisfaction, no causal effect has been established (1997:36). However, Igbaria and Guimaraes (1993) echo a seemingly general consensus among researchers by claiming that the interaction of

job satisfaction, organizational commitment, and turnover intention provide a “well established basis” for the understanding of turnover among IS workers—exactly how, though, is the question. Thus, researchers have called for greater explication of turnover models, providing the impetus for the present research effort with extension into a military environment (e.g., Hom, Caranikas-Walker, Prussia, Dickey, Anderson, & Griffeth, 1991:210; Lamond et al., 2001:B5; Mobley et al., 1979:495; Spector, 1997:21).

However, researching potential facets of job satisfaction and how they might affect AF enlisted personnel’s turnover intentions, as alluring as the prospect sounds, is beyond the scope of the present effort due to lack of measurement items in the secondary data set available to the researcher. What is available is the following single-item global assessment which is self-reported via a seven-item Likert scaled response ranging from “extremely dissatisfied” to “extremely satisfied”: “How satisfied are you with the sense of accomplishment you gain from your work?” It should be noted that single-item job satisfaction measures have been shown to favor comparably against much longer multiple measurement scales, such as the Job Description Index, perhaps the most widely used job satisfaction survey instrument (Nagy, 2002:85; Spector, 1997:12; Wanous, Reichers, & Hudy, 1997:250). Indeed, Wanous et al. (1997) claim boldly, “Single-item measures of overall satisfaction are more robust than the scale measures of overall job satisfaction” (p. 250), and Nagy (2002) offers, “...the single-item measure appears to be preferable to multiple-item measures of facet satisfaction in that it is more efficient, is more cost-effective, contains more face validity, and is better able to measure changes in job satisfaction” (p. 85).

## **Work Exhaustion**

Many studies have explored the concept of employee burnout since the term was first introduced in 1974 (Freudenberger, 1974; Walkey & Green, 1992). Work exhaustion, used synonymously in the literature with the term job burnout (Moore, 2000), is defined as “a psychological syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who work with other people in some capacity” (Maslach, 1993:20). This widely used definition included only those workers within human services professions (e.g., nurses, teachers, and social workers) and reflects the genesis of burnout research. Cordes and Dougherty (1993) noted that burnout research had been “unnecessarily limited to the helping professions” (p. 631); subsequent research (e.g., Elloy, Terpening, & Kohls, 2001; Moore, 2000; Schaufeli, Leiter, Maslach, & Jackson, 1996; Schutte, Toppinen, Kalimo, & Schaufeli, 2000; Sonnentag et al., 1994; and Taris et al., 1999) led to a more generalized definition of job burnout as “a psychological syndrome in response to chronic interpersonal stressors on the job” (Maslach, Schaufeli, & Leiter, 2001:399).

Burnout has also been described as a “syndrome of physical and emotional exhaustion involving the development of negative job attitudes and loss of concern and feeling for others” (Huarng, 2001:15). Leiter and Harvie (1998) state that burnout “results from the gap between the expectations of individuals to fulfill their professional roles and the structure in place within the organization” (p. 5). These two broad definitions are inclusive of much of the literature exploring the etiology of job burnout: personal characteristics (i.e., the physical and emotional aspects of employees), and

environmental characteristics (i.e., organizational traits and expectations), and the gap and interaction between the two.

Maslach and Jackson's (1981) burnout measurement instrument, the Maslach Burnout Inventory (MBI), was introduced in 1981 and became the standard by which burnout was measured within the human services career fields—fields with intensive interpersonal interaction such as nursing, teaching, and public services (Huarng, 2001; Schutte et al., 2000). The original MBI instrument, now known as the Maslach Burnout Inventory-Human Services Survey (MBI-HSS) (Maslach et al., 2001) and widely confirmed as psychometrically sound (e.g., Cordes & Dougherty, 1993; Maslach et al., 2001), utilizes three scales for empirical measurement of the three perceived burnout factors: emotional exhaustion, defined as feelings of being drained, lacking energy, emotionally depleted, and no longer able to give of oneself (Maslach, 1982); depersonalization, defined as a calloused and detached view of others to the point of viewing them as objects rather than people (Maslach, 1982); and reduced personal accomplishment, defined as feelings of inadequacy or incompetence, lack of self-esteem, depression, or even a sense of failure (Maslach, 1982). Of the three, emotional exhaustion is generally regarded as the key component and precursor to depersonalization and reduced personal accomplishment (Cordes & Dougherty, 1993; Kickul & Posig, 2001; Moore, 2000; Walkey & Green, 1992). Also, some researchers suspect that reduced personal accomplishment may develop independently from the other two factors, and may, therefore, be unrelated to burnout (e.g., Cordes & Dougherty, 1993; de Rijk, Le Blanc, & Schaufeli, 1998).

Attempts to utilize the MBI-HSS to measure burnout outside of human service industries (i.e., production-oriented businesses) have met with limited success (e.g., Elloy et al., 2001; Leiter, Clark, & Durup, 1994; Schutte et al., 2000). However, Schaufeli et al.'s (1996) modified scale to measure job burnout in production-oriented industries, the Maslach Burnout Inventory-General Survey (MBI-GS), also uses a three-component model that closely parallels the original MBI. The components are exhaustion, defined as a feelings of overextension, both physically and mentally; cynicism, defined as a mental distancing from one's work and from people at work; and reduced professional efficacy, or ineffectiveness, defined as a decreasing sense of adequacy (Maslach & Leiter, 1997; Maslach et al., 2001). Moore (2000) cites as an example of the MBI-HSS-to-MBI-GS scale conversion that the item "Working with people all day is really a strain for me" was changed to "Working all day is really a strain for me" (p. 143). Taris et al. (1999) describe the MBI-GS subscales as either "directly borrowed," "slightly reworded," or "newly formulated" in an attempt for all subscales to measure the work itself, not the people at work such as customers and coworkers (p. 224). For example, exhaustion measures fatigue in a general sense rather than as a result of dealing with people (Taris et al., 1999). The net effect was a potentially useful measurement tool based on the generally accepted MBI-HSS, yet broadened for applicability and use to any type of business outside of the human services arena. Further, several studies have provided support for the MBI-GS as an effective measurement instrument (e.g., Enzmann, Schaufeli, Janssen, & Rozeman, 1998; Leiter & Harvie, 1998; Salanova & Schaufeli, 2000; Taris et al., 1999).

The above discussion of the MBI-HSS and MBI-GS is pertinent because the nature of the duties of AF enlisted personnel encompass both high levels of human interactions and technical activities. In order to measure burnout, however, an understanding of the suspected causal antecedents is necessary.

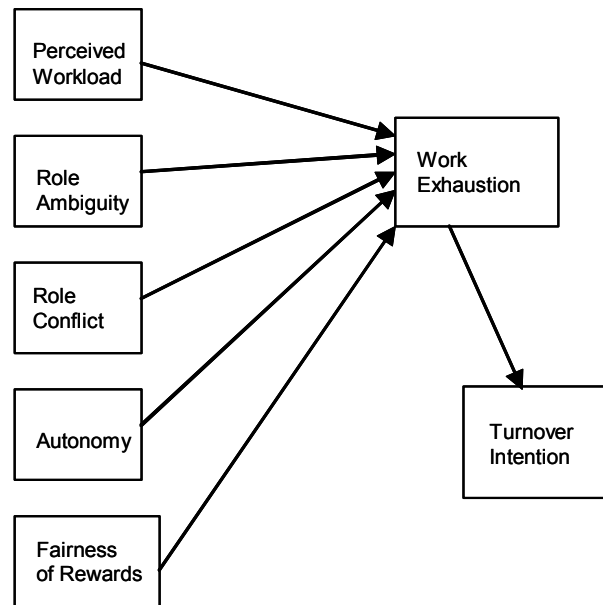
### **Job Burnout Antecedents.**

All of us deal with day-to-day stressors in our jobs, both endogenous, or from-self, and external, or from-environment (Cordes & Dougherty, 1993; Li & Shani, 1991). How does work exhaustion, or burnout, relate to stress? According to Cordes and Dougherty (1993), the delineation between the two concepts is unclear; however, they do conclude that burnout is “a type of stress—specifically, a chronic affective response pattern to stressful work conditions that features high levels of interpersonal contact” (p. 625). In addition to our job environment, we also have stress from our personal lives (Bretz et al., 1994). It is possible that these stressors in AF personnel differ from their civilian counterparts due to the unique demands of a military lifestyle and environment; however, the question as to whether they differ or not is beyond the scope of the present research effort.

As Taris et al. (1999) point out, the focus on burnout investigation has shifted to measurement of the conditions of work itself, not the intensity of interactions with people, whether coworker or customer. Hence, the framework being developed in the present study to assess the job burnout phenomenon with AF workers focuses upon work-related antecedents thought to induce work exhaustion.

Moore (2000), in her study of work exhaustion, identified five work exhaustion antecedents, all of which have been linked consistently and empirically to job burnout:

perceived workload, role ambiguity, role conflict, lack of autonomy, and fairness of rewards (p. 146). Her theoretical framework is presented in Figure 3. Each antecedent is subsequently discussed.



**Figure 3: Moore's Full-Mediation Turnover Model**

### **Perceived Workload.**

Spector (1997) defines workload as “the demands placed on the employee by the job” (p. 43). Further, he notes workload demands to be both quantitative (i.e., amount of work) and qualitative (i.e., mental and physical demands). Hence, perceived workload can be viewed as the employee’s perceptions of not only the amount of work he or she must perform, but also the timeliness and quality with which the work must be delivered. Supporting this assertion is Elloy et al.’s (2001) finding that when the variable “insufficient time to complete work” was removed from their workload measure, burnout levels decreased. Enlisted AF personnel must deal with not only their primary duties, but



also normally must perform additional duties outside of their core job type ranging from such duties as clerical records-keeping, such as equipment custodian, to manual labor, such as clean-up activities and grounds maintenance. Moreover, airmen serving in critically manned job specialties, for example, information technology related career fields, may indeed be working more than their peers of the same rank that work in non-critically manned fields or peers in the private sector, where comparable jobs exist (HQ USAF, 2002). Hence, it is expected that AF enlisted members will perceive high workload levels.

### **Role Stress Variables.**

Role stress variables include role ambiguity and role conflict (Igbaria & Guimaraes, 1999). According to Spector (1997), a job role is “a required pattern of behavior for an individual in the organization” (p. 39). Definitions for role ambiguity include the degree to which employees lack either clear information regarding their role expectations or the methods of fulfilling these expectations (Igbaria & Guimaraes, 1999), and the “degree of certainty the employee has about what his or her functions and responsibilities are” (Spector, 1997:39). Role ambiguity could conceivably result from an incompatibility in an employee’s training and subsequent job role expectations. Role conflict is defined as an incompatibility or incongruity of specific role expectations (Igbaria & Guimaraes, 1999) and “incompatible demands about their [worker] functions and responsibilities” (Spector, 1997:39). An example of role conflict might be a worker receiving conflicting or incompatible direction from two different supervisors or managers.

### **Autonomy.**

The ability to self-direct one's work environment differs in degree of scope. Spector (1997) defines control as the "freedom that employees are given to make decisions about their work" and includes decisions over aspects of the job that have little to do with their specific work tasks (p. 43). Autonomy, Spector claims, is narrower in scope, and is defined as "control limited to the employee's own tasks" (p. 43). Hence, Moore's autonomy construct is considered for the present research as the degree of self-control an AF worker has in accomplishing his or her specific job tasks.

### **Fairness of Rewards.**

Fairness of rewards, or reward equity, is defined by Bozeman and Loveless (1987) as the "equity of remuneration levels in relation to services provided and in relation to what others make, and equity of advancement in relation to others" (p. 212). Spector (1997) cites a Gallop poll revealing that although a large percentage of respondents in a 1991 poll were satisfied with the nature of their jobs, "...far fewer were satisfied with rewards, such as fringe benefits and promotion opportunities" (p. 24; citing Hugick & Leonard, 1991). Further, in a study of differences between public sector and private sector employees, Rainey (1979) found that public sector employees perceived a weaker association between levels of work performance and recognition of efforts as a reward, resulting in lower job satisfaction and identification to the organization (p. 445), a finding echoed by Bozeman and Loveless (1987:204). Cordes and Dougherty (1993), in their review and integration of job burnout research, found the exploration of contingency rewards and outcomes (i.e., "the extent to which rewards and punishment are

linked to performance”) as “intuitively appealing and theoretically justified,” and called for further research on the topic (pp. 631-632). Hence, fairness of rewards for the present effort is considered to be inclusive of direct compensation to include bonus or special pay, recognition of efforts, and opportunities for promotion.

## **Cohesion**

Cohesion in small groups may be the most important group element variable that holds the individual members together as a unified whole (Bollen & Hoyle, 1990:483). This section of the literature review first examines the concept of cohesion in general, and subsequently discusses perceived cohesion as posited by Bollen and Hoyle (1990).

### **Discussion on Cohesion.**

A classic definition of cohesion cited often in the literature is Festinger’s (1950) “the resultant of all the forces acting on members to remain in the group” (p. 274). Muldoon (1955) added that cohesiveness is “the ‘sticking-togetherness’ of the group, or its ability to resist potentially disruptive forces” (p. 75). Carron (1982) extended the definition as “the tendency for a group to stick together and remain united in the pursuit of its goals and objectives” (p. 124). However, review of the literature reveals much debate on the definition of cohesion, as far back as a half-century ago. For example, Schachter, Ellertson, McBride, and Gregory (1968), in a reprint from a 1951 article, observed, “The once modest concept of cohesiveness has in recent years become distinguished by the proliferation of meaning attached to it” (p. 192). Schachter et al.’s (1968) summation is that cohesion has been defined as “morale, “sticking togetherness,”

productivity, power, task involvement, feelings of belongingness, shared understanding of roles, and good teamwork” (p. 192).

There appear to be two main streams of cohesion research: cohesion as a dependent variable, induced by causal factors, and cohesion as an independent construct, separable and measurable from causal factors, affecting members of the group in some manner (Bollen & Hoyle, 1990:480; Cartwright, 1968:91). Further, the literature distinguishes between objective and subjective measurement of both group and individual causal influences. Certainly, Carron’s (1982) definition, “the tendency for a group to stick together and remain united in the pursuit of its goals and objectives” (p. 124), captures a critical element of military group cohesiveness: individuals comprising military groups are expected to place self-interests aside in favor of group goals that may well include participation in life-threatening activities. As Rielly (2001) phrases it,

Research consistently shows that soldiers fight for the other members of their cohesive small unit. They fight to obtain and retain the respect of their peers, even to the point of sacrificing their lives. Failing one’s comrades is worse than risking death because it damages an individual’s personal honor and reputation. (p. 59)

Granted, the image of an AF member does not typically engender the mental image of a warfighter in the sense of an Army infantryman or a Marine; nevertheless, all enlisted members regardless of service department avow the defense of the United States to the extent of the giving of their own life in its defense. Certainly, the possibility of engaging in direct combat is not foreign to AF enlisted troops—all enlisted personnel must complete weapons qualifications courses in basic training and periodically throughout their careers. Further, researchers report finding no clear distinction or effect

on cohesion on the basis of military service (Army, Navy, etc.) or even country (US, Canada, Israel) (Oliver, Harman, Hoover, Hayes, & Pandhi, 2000); hence, AF enlisted personnel are assumed to be under similar cohesion influences as their armed brethren in sister services.

The concept of military cohesion in the era of an all volunteer military force is perhaps even more important—how do we create and maintain cohesion, if, in fact, cohesion is an important factor in retaining volunteers? Further, how can the military attract and retain personnel, especially in highly technical specialties such as information systems, against high paying civilian jobs that don't require, potentially, the loss of one's life as part of the job? These difficult questions provide the impetus for exploring cohesion as a moderator of the military turnover process.

Johns et al. (1984) describe the concept of military cohesion, in a broad sense, as subjugation of self-interests in favor of military interests and conforming to military standards (p. ix). In specific terms, he defines military cohesion as, *“the bonding together of members of a unit or organization in such a way as to sustain their will and commitment to each other, their unit, and the mission”* (p. ix; italics in original).

Commitment to the unit's mission should not be understated in its importance. Military researchers have found that a lack of mission or purpose is a major drain on group cohesion (e.g., Hauser, 1980:205; Hoiberg, 1980:231; Oliver et al., 2000:59). Smith (1998) states that “culture change and cohesion...must begin with the clear definition of a single, unifying mission or vision, one that is attuned to the task structure of the organization and which all key elite segments of the organization can embrace” (p. 48).

Moreover, a group can become so committed to each other that their intra-group cohesion dominates over extra-group cohesion with the unit's mission or objective. An example presented by Rielly (2001) is Charlie Company, 1st Battalion, 20th Infantry—an award-winning unit so “normal” that “the remarkable thing about the company was just how typical it was” (p. 58). And yet, the members of this company were responsible for the My Lai Massacre of Vietnamese civilians on March 16, 1968 (Rielly, 2001:58). Rielly (2001) termed the imbalance of intra- and extra-group influence as negative cohesion which “occurs when a unit develops values, attitudes, beliefs and norms contrary to the organization's” (p. 59).

### **Perceived Cohesion.**

Bollen and Hoyle (1990) conclude that there is little agreement among researchers as to the conceptualization, definition, and measurement of cohesion (pp. 480-482), and further claim that “...there exists no “true” definition of cohesion” (p. 482). As an example, Bollen and Hoyle (1990) quote Zander (1979:433) as stating, “In the absence of a reliable method for measuring cohesiveness in a natural setting, or a reliable procedure for creating it in the laboratory, one cannot be sure to what phenomenon investigators are attending” (pp. 480-481). Further, Dobbins and Zaccaro (1986) allude that cohesion models may receive poor support in subsequent research efforts due to poorly operationalized constructs (p. 215), and Mudrack (1989) labels the group cohesion body of knowledge simply as a “legacy of confusion” (p. 37). Given the disparity of definitions, I use Bollen and Hoyle's (1990) concept of perceived cohesion, “*Perceived cohesion encompasses an individual's sense of belonging to a particular group and his*

*or her feelings of morale associated with membership in the group*” (p. 482; italics in original).

There are two dimensions to perceived cohesion: a sense of belonging and feelings of morale (Bollen & Hoyle, 1990:479). Sense of belonging, which Bollen and Hoyle (1990) say is comprised of both cognitive and affective elements, is an inherent quality and fundamental to the existence of any group, else “the collection of individuals is [just] an aggregate” (p. 484). Feelings of morale are defined as a global, affective response and are further explained as a “positive or negative emotional response to belonging to a group” (pp. 483-484). Oliver et al. (2000) provide support, asserting that “most authorities have agreed that cohesion is a multidimensional construct” (p. 59).

Bollen and Hoyle choose to view perceived cohesion from a Festinger-like viewpoint (1950:274) as an independent construct, i.e., as the resultant of whatever forces may exist to create their two-dimensional concept (p. 483). For the present effort, it is posited that perceived cohesion among AF personnel is a dependent construct based upon the influence of causal factors, and is defined in terms of morale or its synonym, *esprit de corps*, which is consistent with Sarkesian’s (1980) view that, “Unit cohesion, in the most simple terms, is *esprit de corps*” (p. 11; italics in original). Also, one of Oliver et al.’s (2000) conclusions in their meta-analysis of military cohesion studies was to “encourage cohesion researchers to include measures of leadership style, demographic characteristics, task interdependence, and other potential moderators to enable future meta-analysts to explore their relation to cohesion” (pp. 79-80; emphasis added). Hence, based upon the urgings of researchers to further explicate a cohesion framework, and considering the archival data available to the researcher in light of the literature, the

causal factors that will be investigated are stability, location, military related education and training, unit readiness, unit resources, and leadership. Rationale for these constructs is presented next.

### **Stability.**

One of the accepted facts of military life is the propensity for frequent moves, both within the United States and to overseas locations. For purposes of the military, assignment within the continental United States (CONUS) is considered a stateside assignment; all other assignments, including those to Alaska or Hawaii, are considered as overseas assignments, or outside of the CONUS (OCONUS) (AFOMS/OMY, 2002a).

Wesbrook (1980) speculates that military group cohesion disintegrates primarily from a lack of stability. As Wesbrook (1980) states it, “Cohesiveness can be measured indirectly through the presence or absence of conditions which stimulate its development...personnel stability is probably the most critical of these conditions” (p. 266). Rielly (2001) claims that small group norms change for better or for worse after losing key personnel (p. 62). Sorley (1980) states that soldiers often are rotated out and replaced with unskilled soldiers just as the group is beginning to attain a minimal combat effectiveness skill level, which results in growing frustration levels for both the new and seasoned soldiers.

To combat the turbulence of frequent intra-group turnover, some have suggested, even vehemently, that duty tours should be lengthened to increase stability. For example, Oliver et al. (2000) claim “...to enhance cohesion, some authorities...have argued in favor of lengthening tours to diminish turbulence” (p. 78). Some of the more forceful



proponents of longer tours and simultaneous unit-wide rotations include Hauser (1980:205, 208) and Sorley (1980:82). Moreover, Sarkesian (1980) speculates that Western militaries lack integrative strength, in part, due to tenure instability, which “prevent[s] the establishment of strong bonds between the individual and the unit or larger community” (p. 15). It is therefore posited that increased stability will positively correlate with perceived cohesion.

### **Location.**

As stated above, some assignments are in the CONUS and some are OCONUS. In an assessment by the Headquarters, Air Force Personnel Center (AFPC, 2002c), it was determined that “geographic location/base assigned” ranked as the third highest factor of why undecided AF enlisted members voluntarily separate. In fact, the AF offers a special inducement program that allows members to choose the location of their follow-on assignment following an overseas assignment for reenlistees in certain job specialties (AFPC, 2002f).

Sarkesian (1980) presents as an argument for consideration of location as a cohesion factor that, even though the United States military operates in differing cultures around the world to include exposure to foreign cultures, languages, customs, physical characteristics such as terrain, temperature, etc., rarely is the phenomenon of culture shock considered as having implications on military cohesion or effectiveness (p. 42).

Assuming a relationship exists between location and cohesion, the construct of location also brings into consideration the possibility of direct comparison with contemporaries within the immediate environment as a potential moderator of both

perceived cohesion and job satisfaction. Cartwright (1968) notes this effect in the following passage:

Noncombat soldiers in rear areas overseas were found, also, to be more satisfied with army life than were Noncombat troops in the United States. This surprising finding can be explained if we assume that the salient comparison for the overseas troops was the life of the combat soldier, whereas for those in the United States it was that of the civilian population. (p. 97)

Of course, the direction of correlation between the constructs is speculative. It is assumed that in the present conditions of peace, with notable exceptions of ongoing small-scale fighting in Afghanistan and elsewhere against remnants of the Taliban and Al-Qaeda terrorist network, direct comparisons of military personnel are limited to the civilian populace. Hence, it is posited that cohesion for OCONUS individuals and groups are higher than their CONUS counterparts, since the immediate environment of CONUS military personnel consists of potentially equivalent civilian job roles. In other words, the localized effect and lure of alternative employment is posited to exert greater attraction on CONUS-assigned personnel, resulting in decreased cohesion and decreased job satisfaction, and an elevated turnover intention.

### **Education and Training.**

To clarify the definition, education and training in the context of perceived cohesion refers to military-related, or duty-related, education and training. Civilian education and training, e.g. college course work, is considered in the present effort to factor into interrole conflict as discussed earlier in this chapter.

Military training and education begins from the moment an individual enters basic military training—thus starts the process of socialization, or the adjustment of new

enlistees to their new environment. Mobley (1982) describes early socialization in this manner:

The time immediately after entering the organization is important in shaping employee attitudes and behavior. The new employee should be provided with: accurate expectations of what the job requires and the organization expects; a clear understanding of reward contingencies; and assistance in establishing a social support system among peers, the supervisor, and others. Such early socialization may take several months. (pp. 55-56)

Gibson, Ivancevich, Donnelly, and Konopaske (2003) reinforce the importance of this stage, which they term accommodation socialization, by asserting that the employee who successfully completes this stage is likely to experience feelings of group belonging and acceptance, and a sense of competence in performing their assigned job tasks (p. 42). To place this in a military context, Hauser (1980) asserts that increased group performance, i.e., the will to fight, can be greatly increased by “simply more (and more vigorous) training, on the theory that behavior conditions attitudes and that doing things together (especially in an environment of hardship or danger) forges interpersonal and group bonds” (p. 202).

Sarkesian (1980) views education and training as a key connecting element between each individual and his or her role within their military environment. Education and training are key, says Sarkesian, because they enable the military professional to “develop the understanding and appreciation of the relationship between the political-social system, the military institution, and individual roles” (p. 17).

It is conceivable that the communication to individuals of their role within the greater military context as just described fosters cohesion through unity of sense of purpose, as described previously. Hauser (1980) is more forceful in his assertion of

training: lack of education, i.e., ignorance, is “a major contributor to alienation[,] and...knowledge will produce a sense of identification [to the group]” (p. 202). Group identification is characteristic of group cohesion; for example, Schachter et al. (1968) speculate that the valence of the group derives from attractiveness of group activities and attractiveness of other group members (p. 192), and Knouse, Smith, and Smith (1998) find that group pride, or identification of members with the group, to be one of three significant aspects of the cohesion-performance framework (pp. 5, 8). Assuming a relationship exists between military effectiveness and cohesion (e.g., Knouse et al., 1998; Oliver et al., 2000), Hoiberg’s (1980) observation that education is more significantly correlated to military effectiveness than any other predictor is astonishing (p. 214).

Sorley (1980) endorses the claim that a lack of military training has a negative influence on cohesion. For example, just as soldiers become trained and proficient, says Sorley, they are rotated out of the unit before they even have the chance to make a meaningful contribution; as a result, cohesion is kept at minimum levels, and unit and individual training remain at the lowest of acceptable standards (pp. 76-77). Granted, Sorley’s evaluation is based on analysis of the post-Vietnam War military, yet it serves nonetheless to illustrate that military training and education is a cornerstone component of group cohesion and its desired result, mission effectiveness. With respect to training and turnover, Sorley (1980) offers this humorous example:

A distinguished Army officer used to relate an early experience upon assignment to a troop unit stationed in China after a lengthy period of staff duty. Buckling on his sword, he assembled the men and issued his first command: “Squads right, march!” Nothing happened. He again sang out in his best parade ground voice: “Squads right, march!!” Still not a soldier moved. Puzzled, the young officer looked to his sergeant for an explanation, which he got: “Sir, it can’t be did [sic] from this formation.” Much the same

situation would seem to pertain with respect to improving unit training to acceptable levels without first dealing with the disabling effects of constant turnover among the people one is trying to train. In a very real sense, it can't be did [sic] from this formation. (pp. 79-80)

Sorley cautions, however, that unnecessary and short-notice training can be devastating to both the unit's state of training and its cohesion (p. 82). Perhaps as important is the type of training received or not received. For example, the negative cohesion discussed earlier that apparently enabled Charlie Company to commit the My Lai Massacre could possibly have been restored to healthy cohesion levels had ethics and morality training been conducted as often and as well as it should have been (Rielly, 2001:62).

The concept of socialization was discussed briefly at the beginning of this section. The military's indoctrination into their climate and culture, via basic training, is perhaps more intense and challenging than just about any other new work environment. However, the process of socialization may not be merely an initiation and familiarization into the new work role—it may well be an ongoing process throughout the employee's work life, requiring reinforcement throughout an individual's career. For example, Smith (1998) claims that military socialization continues throughout a military member's career via military education, specialty training, and mentoring (p. 50). Rielly (2001) summarizes, "Everyone needs high-quality, sustained training" else values, like skills, tend to erode (p. 62). Hence, it is posited that a positive correlation exists between military-related education and perceived cohesion.

### **Unit Readiness.**

According to Oliver et al. (2000), in a military setting, group cohesion is enhanced by combat effectiveness (p. 58), and unit readiness, i.e., combat readiness, is a frequently used surrogate measure for unit effectiveness (p. 59).

In a military context, the readiness of the unit to perform its assigned mission might be assumed to be equivalent to effectiveness and cohesion. However, Sarkesian (1980) offers a distinction between the constructs: “Readiness, effectiveness, and cohesion tend to be used interchangeable, yet they represent...different parts of the military effectiveness equation, which includes four elements: readiness, cohesion, effectiveness, and credibility” (p. 11). He describes readiness as “the level of technical proficiency of the unit and the operational state of the tools (i.e., weapons) and logistics it requires to perform its mission,” and further notes that “it is difficult to conceive of a cohesive military unit which is not at an adequate level of readiness” (p. 11). Further, he cautions not to view a unit’s readiness apart from cohesion, credibility, and effectiveness (p. 17).

As important as a unit’s readiness level is to decision making, especially in times of armed conflict, Sorley (1980) notes that the numbers-only methodology of assessing readiness creates a tendency to overrate readiness levels. He states that quantitative measurement of readiness data has provided misleading and skewed information, resulting in “numerous policies and practices, from assignments and tenure to selection for promotion and command, which tend to erode unit cohesion” (Sorley, 1980:58). In fact, he finds that an alarming 70 percent of Army survey respondents indicated, “A

unit's readiness report *does not* reflect the true readiness condition of the unit" (p. 69; italics in original).

Noting the importance of being ever ready, the U.S. Marines have incorporated a program called Unit Cohesion that purportedly builds readiness by allowing seasoned Marines from the new members' gaining units to observe and interact with new squad members as they go through infantry training (Knouse et al., 1998:20). This concept gives on-the-spot opportunity for experienced and inexperienced Marines to discuss issues related to training, mission accomplishment, and scheduling. Hence, it is anticipated that higher perceived levels of unit readiness will be positively correlated with higher levels of perceived cohesion.

### **Unit Resources.**

Unit resources is likely closely related to unit readiness, for the definition of readiness used above includes references to resources. In fact, Sorley (1980) views resource provisioning as a constraint that must be constantly assessed in terms of tradeoffs between resource infrastructure and readiness levels (pp. 69-73). It is conceivable that as resource levels deteriorate, thereby reducing a worker's ability to perform his or her job, the affected person's frustration should grow; however, findings are mixed. For example, Mobley et al. (1979) found a significant negative relationship between resource adequacy and turnover, yet Li and Shani (1991) found that, contrary to their expectation, a lack of availability of quality resources were not found to have an impact on personnel stress levels. It is possible that the mere availability of resources would have an impact, however, aside from the quality of the materiel. Knouse et al.

(1998) speculate that adequate resource provisioning provides an opportunity for success to the group and term it as “...crucial to developing task cohesion” (pp. 12, 19); therefore, it is posited that a lack of adequate resources will have a negative effect on perceived cohesion.

### **Leadership.**

As stated previously, an agreed-upon, parsimonious cohesion model has not yet emerged in the literature (e.g., Bollen & Hoyle, 1990; Dobbins & Zaccaro, 1986; Oliver et al., 2000; Schachter et al., 1968). Oliver et al. (2000), in their summary of ill-defined cohesion conceptualizations, call for researchers “to include measures of leadership style, demographic characteristics, task interdependence, and other potential moderators to enable future meta-analysts to explore their relation to cohesion” (pp. 79-80). Perhaps one of the most important factors relating to cohesive groups is leadership and even consideration of the style of leadership used (Cartwright, 1968:91), although an analysis of leadership style is beyond the scope of the present effort.

Johns et al. (1984) believe that AF officers, in their role as the service’s primary leaders, serve two critical roles in producing military cohesion: “(1) providing leadership of primary groups, and (2) integrating and linking the primary groups to the larger military institution and the nation” (p. xiii). Smith (1998) calls the officer corps the infrastructure upon which cohesion must be built (p. 48) and believes it is the overall unifying element within an organization:

...culture change and cohesion are products of senior leadership acting in concert with leaders reaching down into the organization—it is an internal, active, top-down process. It must begin with the clear definition of a single, unifying mission or vision, one that is attuned to the task structure of the



organization and which all key elite segments of the organization can embrace. (p. 48)

Johns et al.'s and Smith's valuations of leadership as a cohesion influence are echoed by Sarkesian (1980), who states that leadership is perhaps more significant to military cohesion than are skills or training (p. 13).

If leadership, then, is important to cohesion, then ineffective leadership should result in lower group cohesion or perceived cohesion. There are a couple of key problem areas that researchers have noted. One, alluded to previously under the discussion on stability, is length of tenure. Officers seem to rotate at head-spinning speeds sometimes in an attempt to increase the breadth and depth of an officer's overall experience; however, frequent moves may be related to a decrease in cohesion as discussed previously. Knouse et al. (1998) believe that successful leaders draw out contributions of all group members, thereby increasing cohesion (p. 12); however, it is questionable whether a short-tenured officer can develop the intra-group bonds necessary to perform this function in a conscientious or effective manner (e.g., consider the discussion of accommodation socialization above). Hauser (1980) calls for combating this problem by lengthening the tenure of officers so that they can develop more of an intimate bond, or personal stake, in the growth and development of their subordinates (p. 208). An example of young, inexperienced leadership is, again, from Charlie Company of My Lai Massacre infamy. According to Rielly (2001), the platoon and squad leaders were young, inexperienced, and poor disciplinarians (p. 58), which is why the inquiry concluded that small group leadership is both key and crucial in ensuring small group

cohesion and alignment of the group's values and norms with those of the organization (p. 63).

The second leadership problem frequently mentioned by military cohesion researchers is officer careerism (e.g., Hauser, 1980; Lewy, 1980; Segal & Lengermann, 1980; Sorley, 1980). Lewy describes careerism as officers "being more interested in advancing their careers than leading their units or caring for those placed under their charge" (p. 104). Unfortunately, the officer assignment and promotion system may itself be responsible for breeding careerism. Sarkesian (1980) begins with an analysis of the all-volunteer military:

Western military institutions appear to lack integrative strength. Several factors are responsible, including the decline in nationalism, leader legitimacy, and social control. This is exacerbated by the complicated personnel policies which prevent the establishment of strong bonds between the individual and the unit or larger community... (p. 15)

One possible effect of the aforementioned personnel policies is on the officer performance rating system. Sorley (1980), in his analysis of post-Vietnam War Army officers, noted that current officer promotion and performance policies, which he described as being similar in nature across all the service departments, tends to endorse the clustering of officer performance appraisals at the top end of the performance spectrum, making it impossible to distinguish who should be promoted and who are truly effective leaders (pp. 66-67). The result, he claims, are officers afraid to make a career-ending mistake—they are overcautious and focused on advancing their own career through manipulation of the system. How bad is careerism? Segal and Lengermann (1980), quoting Hauser from an earlier article, compare it to a criminal offense:

In addressing the criticisms of military professionalism raised during the Vietnam War, Colonel William L. Hauser notes three classes of events that, in terms of most traditional definitions of professionalism, would be regarded as “unprofessional”: war crimes, corruption, and careerism. (p. 155; quoted originally from Hauser, 1973:161-186)

To summarize the importance of leadership on group cohesion, Smith (1998) notes that the AF officer corps is the key in changing AF culture “from AF *core* concepts to an AF *corps* concept” (p. 54). Hence, the researcher anticipates a negative correlation between leadership and perceived cohesion.

### **Population of Interest**

Air Force enlisted personnel serving in the Information Systems (IS) career field were selected as the population of interest to test the developing theoretical framework. The present research considers the AF IS profession as consisting of Air Force Specialty Codes (AFSCs) 3C0X1, computer operator; 3C0X2, computer programmer; and 3C2X1, computer-communications systems (C-CS) controllers, hereafter referenced as operators, programmers, and controllers, respectively. The rationale for this classification and exclusion of the remaining AFSCs comprising the 3C Air Force Specialty is based on job classifications used previously in the literature (e.g., Baroudi, 1985:348; Bijleveld et al., 2000:127; Huarng, 2001:16; ITAA, 2002:60-61; Moore, 2000:147; Wynne, 2002:20-22). Enlisted AF operators, programmers, and controllers are among the most critically-manned career fields in the service (HQ USAF, 2002); hence, it is assumed the demand stressors for their time and technical expertise should encourage conditions favorable to elevated work exhaustion, interrole conflict, and reduced perceived cohesion.

Researchers have found burnout-stress levels to be higher among IS workers than in non-IS workers, hence, both decreased job satisfaction and increased turnover intention are believed to result (e.g., Huarng, 2001; Moore, 2000; Sonnentag et al., 1994). In an earlier study, Baroudi (1985) concluded that role ambiguity was the most dysfunctional role stressor among IS workers (p. 341). Further, studies show that personality factors (i.e., individual-difference variables) have less to do with burnout than do organizational factors (Moore, 2000; Elloy et al., 2001). Therefore, while personal tolerances and reactions to job-centered stressors vary, perhaps considerably, research suggests that environmental factors are preeminent as a locus of causality leading to excessive levels of exhaustion, in turn effecting undesirable consequences such as withdrawal cognitions (Moore, 2000). The extraordinary workplace demands placed on highly skilled AF IS workers, coupled with the reality of their serving in critically-manned job specialties, is believed to place AF IS workers at risk for work exhaustion. For the same reasons, it is believed that the resultant extraordinary demands on AF IS workers will elevate the tensions between their work and nonwork demands, creating elevated levels of interrole conflict (Bretz et al., 1994; Hom & Kinicki, 2001; Spector, 1997; Weiss et al., 1999).

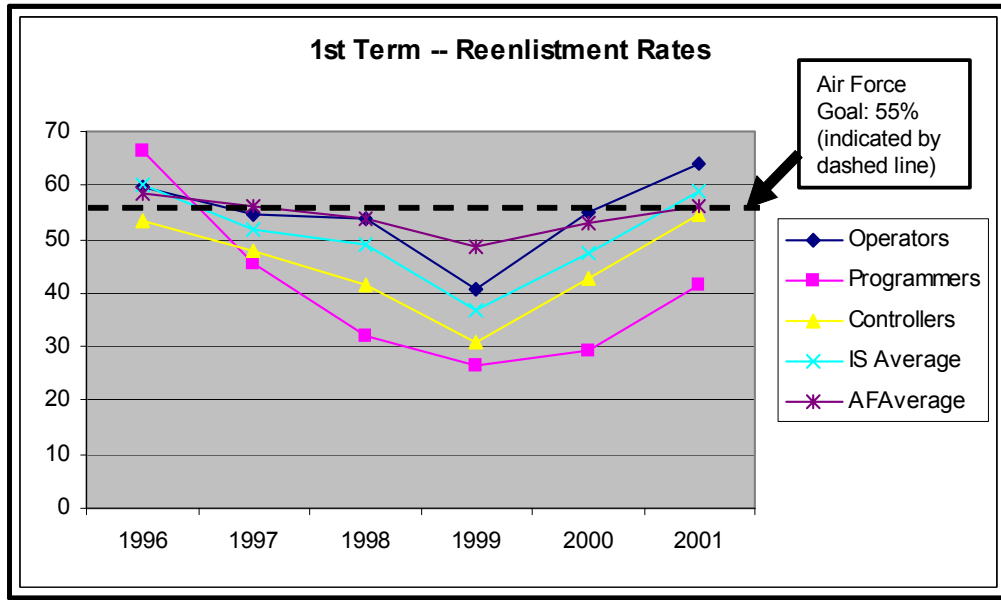
Johns et al. (1984) claim that moral commitment is necessary for the imbuing of the sense of “calling” or “professionalism” required for military service and cohesion (p. ix). Further, Johns et al. state that moral commitment is comprised of sociological and psychological elements such as esteem, affection, prestige, and ritualistic symbols, and that it is representative of what Moskos (1973) calls an institutional job model (p. x). The converse, say Johns et al., is an occupational job model, described as a manipulative

environment based on job attraction factors such as pay and benefits, and, as a result, is “transitory, of low intensity, and in the nature of a contractual relationship, where membership is viewed as a job” (p. x). Johns et al. (1984) further propose systemic factors present in the military environment, and particularly within the all-volunteer force structure, leading to an inadvertent conversion from the desired institutional model to the occupational model (p. xi). One such factor he lists which is representative of the AF IS work force is “convergence of military and civilian technical skills” (p. xi):

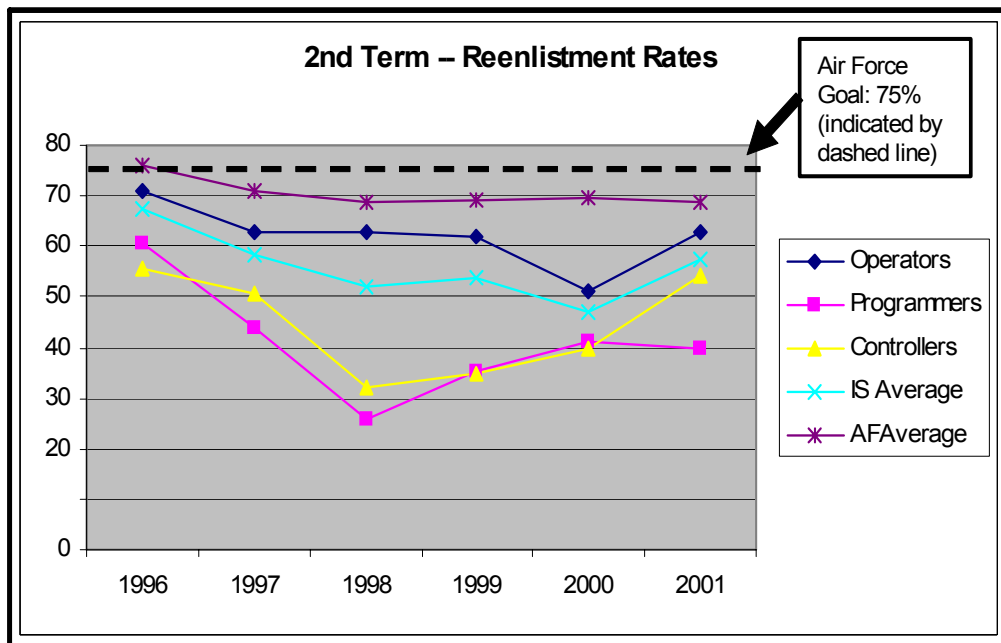
The rapid development of technology has changed the entire nature of the military. Not only has it changed how people live, eat, and work; it has also changed their relationships to each other and to the organization. Military skills converge with civilian skills, offering alternative employment. Technicians focus on equipment rather than on people. Highly skilled technicians require differential pay. Technical workers and staffers have more expertise in their areas than their superior officers do. (Johns et al., 1984:xii)

Hence, since the AF IS professionals exemplify Johns et al.’s concerns of the convergence of civilian skills within military jobs, AF IS professionals may perceive less cohesion.

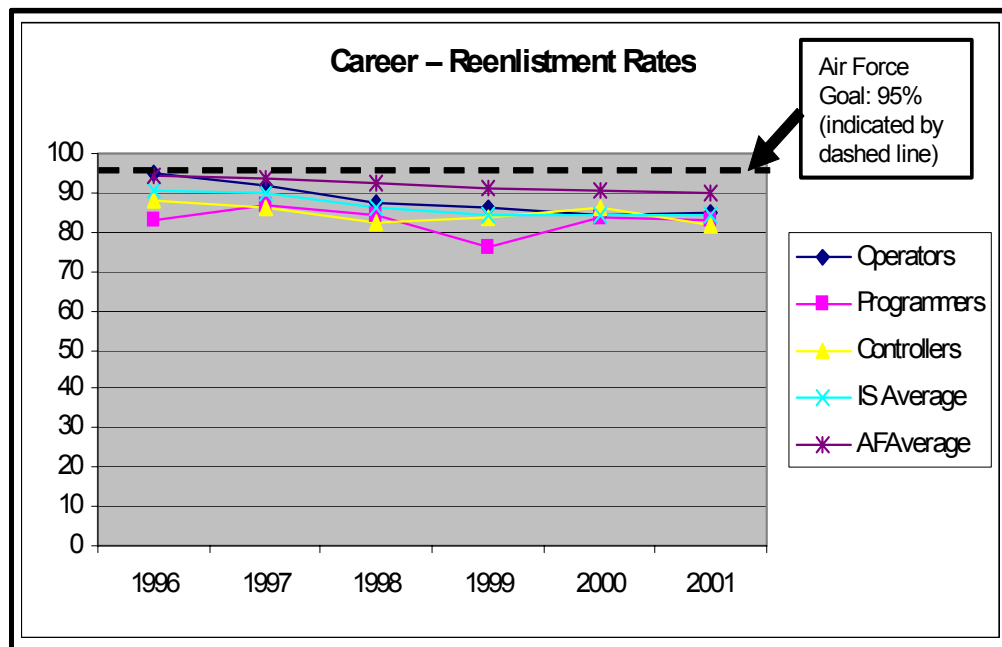
Figures 4, 5, and 6 depict graphically the retention problem of reenlistment-eligible AF IS airmen for first-term, second-term, and career airmen, respectively, for the past six years (AFPC, 2002e). The Air Force’s target goals are indicated on the graphs as dashed lines. Each chart includes operators, programmers, and controllers, separately and aggregated (indicated as “IS Average”), and also includes the service’s overall retention rates for comparison (indicated as “AF Average”).



**Figure 4: AF IS 1st Term Reenlistment Percentages**



**Figure 5: AF IS 2nd Term Reenlistment Percentages**



**Figure 6: AF IS Career Airmen Reenlistment Percentages**

The figures show that, with a couple of exceptions for first-term reenlistees, IS personnel reenlistments lag well below both AF goals and the AF's overall average. Although actual retention varies by career field, the AF sets only a service-level retention goal by enlistment term without setting career field-specific retention goals. The service's goals are 55 percent retention for first-term enlistees, 75 percent for second-term enlistees, and 95 percent for career airmen (HQ USAF, 2002). With the exception of the programmers, the strong improvement for 2001 reenlistments for first-term IS airmen over previous years is encouraging. However, reenlistment rates for second-term enlistees show dramatic gaps from the AF goals. It is conceivable that first-term retention improved due to the souring economy and that improved first-term retention, if

contrasted with second-term and career reenlistment rates, does not necessarily reflect a long-term career commitment, but rather a move toward short-term job security.

Another indicator of AF retention difficulties is the selective reenlistment bonus (SRB), described as “a monetary incentive paid to enlisted members to attract reenlistments in, and retraining into, critical military skills to sustain the career force in those skills” (AFPC, 2002b). The SRB is presented as a numerical factor which is inserted into a formula based on the member’s pay grade and the number of years of the reenlistment. The resulting dollar value is a tax-free bonus paid to the airman, half upon reenlistment, and the remainder spread evenly as annual installments over the period of the reenlistment. The SRB factors as of May 2002, presented in Table 1, are among the highest for any enlisted career field; hence, the SRB serves as an indicator of retention problems (AFPC, 2002a)

**Table 1: AF IS Selective Reenlistment Bonuses**

AFSC	DESCRIPTION	ZONE A	ZONE B	ZONE C
3C0X1	Operator	6	6	3.5
3C0X2	Programmer	6	6.5	3.5
3C2X1	Systems Control	5.5	6.5	3
<b>NOTE:</b> Zone A: reenlistment between 17 months and 6 years of service Zone B: reenlistment between 6 years and 10 years of service Zone C: reenlistment between 10 years and 14 years of service				

A notional example of the SRB is presented in Figure 7 for a staff sergeant (enlisted pay grade of E-5) with eight years of service, hence Zone B, reenlisting for four years with a 6.5 SRB factor. The example was selected for two reasons: 1) the high SRB factor indicates a critical shortage exists in the AF for this mid-level specialist; and 2) not having reached 10 years of service, yet being skilled very highly, this notional person is expected to be heavily recruited by corporate IS headhunters (HQ USAF, 2002).



\$2030	x	4	x	6.5	=	\$52,780
base pay		# years		SRB factor		total bonus

**Figure 7: SRB Example**

The SRB is, in essence, a reactive attempt to rectify an already existing problem. Not only is this concept apparently not as effective as the service would desire, but also the service is encountering budgetary constraints for SRB program funding. In January 2001, the service lacked adequate funds to meet the ever-increasing recommended SRB funding levels (AFPC, 2002d). When considered against poor retention rates for the same time frame, it raises the question of whether more effective retention techniques may exist rather than the reactionary and costly SRB program. Application of the theoretical framework that follows may provide senior AF leaders with a tool to refine and assess turnover intention causes, thereby allowing modifications to AF retention policies and procedures.

### **Theoretical Framework**

The fully integrated research model is presented in Figure 8. The theorized model is based primarily on Mobley et al.'s (1979) turnover model with the added constructs of interrole conflict (Hom & Kinicki, 2001), work exhaustion (Moore, 2000), and perceived cohesion (Bollen & Hoyle, 1990).

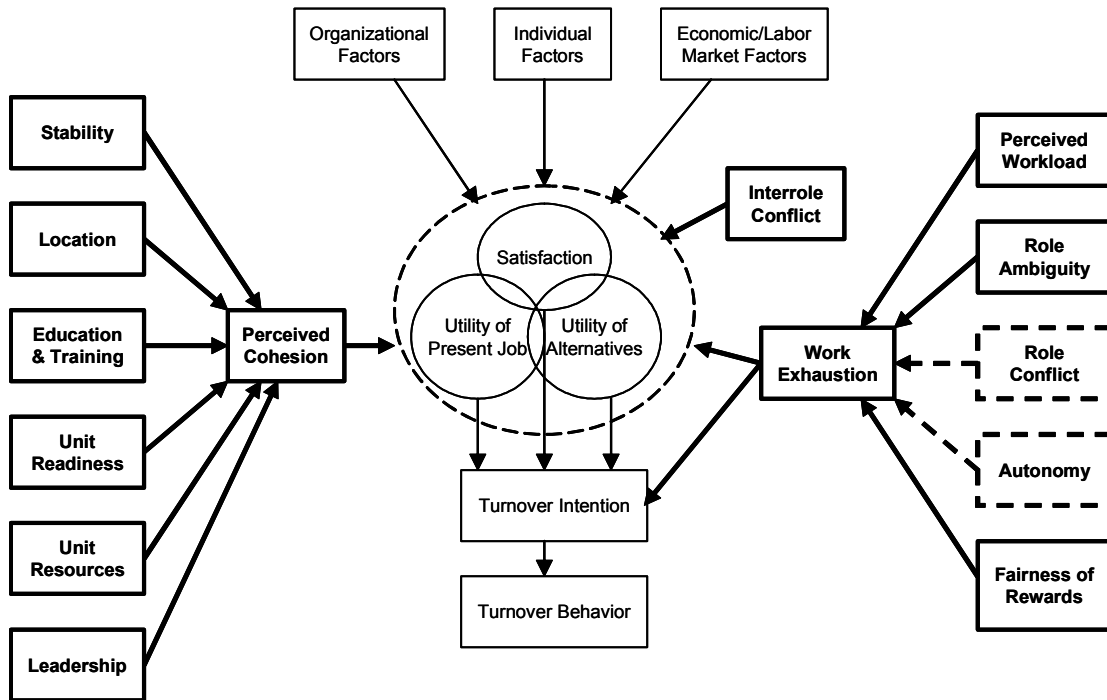


Figure 8: Smith's AF IS Enlisted Turnover Framework

### **Hypotheses.**

The archival data set available to the researcher contains data for AF IS personnel with stated intentions of either separating or reenlisting in the service. In all cases, whether the airman indicated a stay or quit intention, an identical list of 31 pre-selected factors was presented to the airman to select none, some, or all of the factors as influences upon his or her stay or quit intention; the factors are discussed further in Chapter 3.

### **Work Exhaustion.**

*Hypothesis 1:* Higher work exhaustion scores, as measured by the aggregated component scores of perceived workload, role ambiguity, and fairness of rewards, will be

higher statistically in significance to lower job satisfaction than will lower aggregated work exhaustion scores.

### **Interrole Conflict.**

*Hypothesis 2:* The aggregated score of the JIS survey response items theorized to comprise interrole conflict, off-duty education and training, childcare needs, spouse's career, location of present assignment, and number/duration of TDY's and deployments, will have a statistically higher significance to lower job satisfaction than will the aggregate scores of those who do not exhibit perceived interrole conflict.

### **Perceived Cohesion.**

*Hypothesis 3:* Lower perceived cohesion scores, as measured by the aggregated component scores of *esprit de corps* (morale), stability, location, education and training, unit readiness, unit resources, and leadership, will be higher statistically in significance to lower job satisfaction than will lower aggregated perceived cohesion scores.

## **Summary**

This chapter first discussed the concept of turnover through a literature review and discussion of turnover models as presented by Mobley, et al. (1979) and Hom and Kinicki (2001). Next, the work exhaustion literature was examined with particular attention to Moore's (2000) job burnout model. Finally, cohesion was presented with special attention to Bollen and Hoyle's (1990) concept of perceived cohesion. A theoretical framework for enlisted AF IS personnel turnover was then presented with stated hypotheses for subsequent testing and analysis in the following chapters.

### **III. Methodology**

#### **Overview**

The preceding chapters have examined the problem the AF faces with respect to retention of its enlisted IS professionals and the current turnover theory with particular emphasis on work exhaustion, interrole conflict, and lack of perceived cohesion as mediators to job satisfaction and turnover intention. The theory posited is that these factors function as independent influences on the job satisfaction-to-turnover intention relationship of enlisted AF IS personnel. This chapter will discuss the methodology used to study the hypotheses presented in Chapter 2 to include descriptions of both the relevant population and the AF Job Inventory Survey (JIS). Also discussed will be the statistical analysis techniques used to analyze the archival data.

#### **Research Design**

As noted by researchers, turnover models typically explain only a small amount of the variance between theorized constructs and turnover intention. The Mobley et al. (1979) turnover model, used as the basis for the present effort, is perhaps the most studied model today (Spector, 1997), yet it explains only 16 percent of variance (Lee & Mowday, 1987:495). Hence, Mobley and his colleagues called on future researchers to evolve their model with more variables (Mobley et al, 1979:496).

The previous chapter illustrated graphically that AF IS personnel retention for the past six years has been lower than AF goals and AF averages. What factors may be influencing higher quit rates for the AF IS population? Since both the literature and

popular press have given much attention to work exhaustion as an antecedent to turnover intention (e.g., Baroudi, 1985; Bijleveld, Andries, & Van Rijckevorsel, 2000; Copeland, 2002; Dash, 2002; Gomolski, 2002; Harris, 2000; Huarng, 2001; Li & Shani, 1991; Moore, 2000; Sonnentag et al., 1994; Surmacz, 2002a, 2002b), it is logical to study the construct of work exhaustion as a turnover intention antecedent.

Hom and Kinicki's (2001) rationale for looking at nonwork variables comes from their observation that extant models have only "modest predictive ability" despite over 25 years of research (p. 975); thus, they turned toward nonattitudinal factors for increased model fidelity. One of their hypothesized constructs, interrole conflict, is noteworthy because it incorporates all nonwork factors for single as well as married persons. The military lifestyle can be demanding and can impact significantly a person's off-duty life, even to the extent of the giving of one's life during the performance of their job. Although Lee and Mowday (1987) did not find nonwork influences to be significantly related to turnover intention, they note that it "seems inappropriate to recommend deleting nonwork influences on the basis of a single study" (pp. 737-8). Further, Greenhaus, Collins, Singh, and Parasuraman (1997) believe interrole conflict is often ignored by researchers and term the inclusion of the construct into extant models "imperative" due to increasing conflicts between home and work life (p. 977). This assumption appears to endorse tacitly the concept of rising levels of work exhaustion, for it is plausible that work exhausted personnel are giving time at work in sacrifice of personal or family endeavors. Bretz, Boudreau, and Judge (1994) found that workers may indeed exhibit greater turnover intentions in order to seek a more favorable balance between work and family time or to increase leisure pursuits.

Since the AF depends on volunteers to sustain the force structure, it seems that the relationship of perceived cohesion to job satisfaction and turnover intention invites scrutiny. As Dobbins and Zaccaro (1986) found, workers in groups with high cohesiveness were more satisfied than low cohesiveness groups (p. 203). Moreover, it could be argued that effective and continued military service requires high perceived cohesion since the conduct of military activity perpetually carries the inherent risk of armed conflict and trust in one's comrades-in-arms to accomplish their military objective. Hence, the relationship of perceived cohesion to turnover intention should be examined closely.

A last consideration for the present research design stems not from the literature, but from the secondary data set itself. The model presented in the previous chapter is constructed so as to reflect construct validity based on extant research and to provide a valid means to assess the data at hand. It is expected that analysis of the archival data will allow the researcher to determine whether the posited model is appropriate for assessing AF IS personnel turnover intentions and whether the JIS survey instrument adequately captures turnover factors.

### **Relevant Population**

The AF IS population, comprised of enlisted personnel serving as computer operators, computer programmers, and systems controllers, was selected for this research. Knowledge requirements for each of the job types, extracted from Air Force Manual (AFM) 36-2108, *Enlisted Classification*, are provided in Appendix D. Personnel excluded from participating in the survey included hospitalized personnel; technical

school students; personnel undergoing a permanent change of station (PCS), i.e., people in the process of moving; personnel within six weeks of retirement; and personnel with less than six weeks at their new base (AFOMS/OMY, 2002a, 2000b). The last category, personnel with less than six weeks on the job, ensures that respondents have had a minimal amount of time to acclimate to their new working environment or to become proficient in their new work role. Demographic data for survey respondents, indicated by “n,” are presented in Table 2 with comparisons to averages from the corresponding AF population (“N”) and to overall AF averages. Data sources included survey self-report data and web-based extracts by the researcher from the AF’s Interactive Demographic Analysis System, or IDEAS, from the Year 2001 database (AFPC, 2002e). Further, since the AF JIS does not specifically ask respondents for their current enlistment term, and since enlistment terms typically range from four to six years, the enlistment terms for survey participants were estimated at five year intervals based on the respondents’ answers to the number of years and months of their total active federal military service (TAFMS). Hence, for the survey sample (“n”), the first-term cutoff is 60 months and the second-term cutoff is 120 months.

**Table 2: Demographics Comparison**

Variable	n	n %	N	N %	AF	AF %
<b>Sex</b>						
Male	2695	87.44%	8870	84.20%	225,532	80.43%
Female	387	12.56%	1665	15.80%	54,879	19.57%
TOTALS	3082	100%	10,535	100%	280,411	100%
<b>Enlistment Term</b>						
First-term	1121	36.37%	3511	33%	109,740	39%
Second-term	491	15.93%	1821	17%	43,113	15%
Career	1354	43.93%	5199	49%	126,092	45%
Unknown	116	3.76%	4	0.038%	1,466	0.52%
TOTAL	3082	100%	10,535	100%	280,411	100%
<b>Job Type</b>						
Operator	1413	45.85%	7359	69.81%	n/a	n/a
Programmer	671	21.77%	1171	11.11%	n/a	n/a
System Controller	998	32.38%	2012	19.09%	n/a	n/a
TOTALS	3082	100%	10,542	100%	n/a	n/a
<b>Pay Grade (Rank)</b>						
E-1/E-2 (AB/Amn)	65	2.11%	387	3.67%	25,329	9.03%
E-3 (A1C)	576	18.69%	2063	19.58%	51,953	18.53%
E-4 (SrA)	582	18.88%	1873	17.78%	53,226	18.98%
E-5 (SSgt)	817	26.51%	2799	26.57%	69,860	24.91%
E-6 (TSgt)	607	19.70%	2001	18.99%	42,432	15.13%
E-7 (MSgt)	415	13.47%	1349	12.80%	29,220	10.42%
E-8 (SMSgt)	20	0.65%	63	0.60%	5611	2.00%
E-9 (CMSgt)	0	0%	0	0%	2777	1.0%
Unknown	0	0%	0	0%	3	0.00107%
TOTALS	3082	100%	10,535	100%	280,411	100%
<b>Assignment Location</b>						
Continental United States	2155	69.92%	7618	72.32%	212,315	75.72%
Overseas	927	30.08%	2916	27.68%	62,731	22.37%
Unknown	0	0%	0	0%	5365	1.91%
TOTALS	3082	100%	10,534	100%	280,411	100%

### Description of Job Inventory Survey Process

The AF-developed JIS is an occupational-specific survey administered every three to five years. It is used primarily by AF personnel agencies for assessing and improving job type classifications, resource utilization, promotion tests, and qualification training, and, according to the OMS, is not intended or designed for specific measurement of causal factors relating to intention to separate or reenlist (AFOMS/OMY,



2002a). The survey process consists of seven distinct phases, described in detail in Appendix B. The seven phases are 1) initiation of survey, 2) job inventory development, 3) survey administration, 4) data processing and quality control, 5) data analysis, 6) publication of results, and 7) interaction with users of the survey data. Reliability of the responses is addressed by OMS's quality control efforts as described in phase four of the survey process and by careful screening of returned surveys to eliminate those that exhibit patterned responses (e.g., entering the same response for every question, or other patterns such as "1-2-3-4-5," etc.) (AFOMS/OMY, 2002a, 2002b).

The JIS runs under the MS-DOS operating system and was administered by floppy diskette. Upon initiation of the surveys of the three career fields inclusive of the present research, OMS obtained a list of eligible participants, by base or installation, from the Air Force Personnel Center (AFPC), and then mailed a box of JIS survey diskettes to an appointed survey control monitor (SCM) at each base or installation. Each diskette was coded with a control number, and each SCM had discretion on how to administer the survey at their respective base or installation. Although the survey was reportedly mandatory and personal identifying data elements were tracked by the survey, no action was taken against non-takers. Further, it is unclear how or if an SCM monitored, tracked, or enforced survey participation. Hence, it cannot be categorically stated that the survey was mandatory, nor can the claim be made that survey administration was standardized from base to base.

After 90 days, phase three, survey administration, was formally ended regardless of the number of unreturned surveys, provided that a minimum 90-day return rate threshold reached "about 85 percent" for active duty personnel and if "critical" bases had

returned their surveys (AFOMS/OMY, 2000b). It is unknown how bases or installations were determined to be critical to the survey process for the particular career field study except for an electronic mail correspondence from an OMS analyst stating that critical bases were those deemed to have “unique missions/aircraft/equipment [relevant to the job type being surveyed]” (AFOMS/OMY, 2002b). Further, the rationale for using an “about 85 percent” threshold is not known.

### **Description of Job Inventory Survey Instrument**

As stated previously, the primary purpose of the JIS is a three-to-five-year assessment of the job relevant tasks being performed by members of the population under study. Further, the survey instrument was apparently not intended to measure job satisfaction or turnover intention; nevertheless, it is in fact used by senior AF leaders to report on the state of AF IS retention and, presumably, to make service-level management decisions to improve retention (HQ USAF, 2002).

The survey questions are shown below. Most of them use either seven-point or five-point Likert responses, and are worded similarly to measures found in other much-researched job satisfaction/turnover intention measurement instruments such as the Job Description Index, Job Satisfaction Survey, Minnesota Satisfaction Questionnaire, and Job Diagnostic Survey (Spector, 1997).

- Are you assigned to a base or installation which is located outside the continental U.S.?  
Yes  
No

- How do you find your job? **Choose only one.**
  - Extremely Dull
  - Very Dull
  - Fairly Dull
  - So-So
  - Fairly Interesting
  - Very Interesting
  - Extremely Interesting
- How does your job utilize your talents? **Choose only one.**
  - Not At All
  - Very Little
  - Fairly Well
  - Quite Well
  - Very Well
  - Excellently
  - Perfectly
- How does your job utilize your training? **Choose only one.**
  - Not At All
  - Very Little
  - Fairly Well
  - Quite Well
  - Very Well
  - Excellently
  - Perfectly
- How satisfied are you with the sense of accomplishment you gain from your work? **Choose only one.**
  - Extremely Dissatisfied
  - Very Dissatisfied
  - Slightly Dissatisfied
  - Neither Satisfied Nor Dissatisfied
  - Slightly Satisfied
  - Very Satisfied
  - Extremely Satisfied
- Do you plan to reenlist at the end of your current enlistment? **Choose only one.**
  - Will Retire (I will have completed at least 20 years' service)
  - Definitely Will Not Reenlist
  - Probably Will Not Reenlist
  - Probably Will Reenlist
  - Definitely Will Reenlist
- Examine each factor and determine whether it influenced your decision to separate or retire.  
Choose all that apply. After you have selected all of the appropriate items, you will be asked to rate their relative importance.

Military lifestyle	Military related education & training opportunities	Childcare needs
Pay & allowances	Off-duty education & training opportunities	Spouse's career
Bonus or special pay	Medical or dental care for active duty member	Civilian job opportunities
Retirement benefits	Medical or dental care for family members	Equal employment opportunities
Base housing	Base services	Number of PCS moves
Work schedule	Location of present assignment	Additional duties
Job security	Number/duration of TDY's or deployments	Enlisted evaluation system
Promotion opportunities	Training/experience of unit personnel	Unit manning
Unit resources	Leadership of immediate supervisor	Unit readiness
Recognition of efforts	Esprit de corps/morale	Leadership at unit level
Senior Air Force leadership		

The JIS survey instrument for the computer operator job type can be viewed at Appendix C. The only meaningful differences between the operator JIS and the JIS instruments used for programmers and system controllers are in the areas of job title and job tasks. The independent and dependent variables of interest remain identical from survey to survey.

### **Description of Secondary Data Sets**

OMS analysts provided archival data and data file formats to the researcher in sequentially indexed text files, or flat files, through secure electronic means. The files were converted by the researcher on a one-for-one basis into Microsoft Excel version 2002 spreadsheet files, merged into a single file, and then converted to database files for analysis using SPSS version 11.5 for Windows. Next, extraneous data fields not pertinent to the research effort were deleted. For example, the first three fields of each file, booklet identification, input sequence number, and membership selection of all members, appeared to be designed specifically for internal OMS use. Also excised were data fields relating to specific job tasks performed. The researcher also received four voluminous flat files of write-in comments in Microsoft Word and Microsoft Excel formats. The anonymous comments were received in raw form without correlating

information to the corresponding archival data set record. Unfortunately, since the write-in comments cannot be related to that person's answers from the archived data sets, the only foreseen use for the write-in comments is to perform a content analysis on them in an effort to identify factors that may be missing from the existing JIS survey instrument.

### **Construct Measurement Content**

Assessment of the theorized framework will be made using measurement items directly from the JIS instrument, as described above. Since the use of validated and reliable measurement tools was not possible for this effort (e.g., using the MBI-GS for assessment of work exhaustion), response items from the JIS instrument were selected for loading on model constructs developed from a careful review of extant literature. Therefore, caution is urged when analyzing both the model and any findings. Obviously, causal relationships can be neither implied nor claimed; however, it is hoped that patterns will emerge which will allow for future analysis through validated means.

#### **Turnover Intention.**

Turnover intention is measured through the single-item response question from the JIS, "Do you plan to reenlist at the end of your current enlistment?" Those selecting either "definitely will not reenlist" or "probably will not reenlist" were considered to exhibit an intention to quit. Any factor the respondent selected as an influence on his or her decision was treated as a separation factor and was reverse coded, as discussed previously.

### **Job Satisfaction.**

Like turnover intention, job satisfaction was measured using a single-item response, “How satisfied are you with the sense of accomplishment you gain from your work?” In the previous chapter, it was noted that job satisfaction exhibits a strong and consistent correlation with turnover intention (e.g., Baroudi, 1985; Igbaria & Guimaraes, 1999; Mobley et al., 1979; Spector, 1997) and that the use of a single-item, global satisfaction measure “...appears to be preferable to multiple-item measures of facet satisfaction in that it is more efficient, is more cost-effective, contains more face validity, and is better able to measure changes in job satisfaction” (Nagy, 2002:85).

### **Work Exhaustion.**

Work exhaustion will be assessed as a dependent variable, based on the aggregate score of suspected causal influences as shown in the proposed model, and as theorized by Moore (2000). Three of Moore’s proposed causal factors, perceived workload, role ambiguity, and fairness of rewards, are described in terms of JIS measurement items below. Role conflict and autonomy are not assessed due to lack of suitable JIS measurement items.

### **Perceived Workload.**

Perceived workload is comprised of the following three JIS response items: unit manning, additional duties, and work schedule.

### **Role Ambiguity.**

Role ambiguity is captured by the fourth survey question, “How does your job utilize your training?”

### **Fairness of Rewards.**

Fairness of rewards is measured by the aggregation of the following four factors: recognition of efforts, promotion opportunities, pay and allowances, and bonus or special pay.

### **Interrole Conflict.**

Hom and Kinicki's concept of interrole conflict is comprised of all nonwork tensions (Hom & Kinicki, 2001). Hence, interrole conflict is perceived to be inclusive of the following five factors: off-duty education and training (i.e., nonmilitary related), childcare needs, spouse's career, location of present assignment, and number and duration of temporary duties (TDY's) and/or deployments. An important distinction regarding TDY's is that TDY's are performed away from the member's normal duty station, therefore requiring travel, altered schedules, and interruption of normal activities. A duty performed at one's assigned duty station, regardless of whether it is a core component of their assigned job, is not considered to be a TDY.

### **Perceived Cohesion.**

Perceived cohesion, according to Bollen and Hoyle (1990), is composed of two dimensions: a sense of belonging and feelings of morale (Bollen & Hoyle, 1990:479). They further state that a sense of belonging is an inherent, fundamental quality of any group (p. 483). Therefore, it is assumed that a sense of belonging exists in AF groups, else "the collection of individuals is [just] an aggregate" (Bollen & Hoyle, 1990:484), and that perceived cohesion can be partially measured through the JIS response item *esprit de corps*/morale. However, unlike Bollen and Hoyle's view of perceived cohesion as an independent construct, i.e., as the resultant of whatever forces may exist to create it

(p. 483), the researcher chose to follow the urgings of others (e.g., Oliver et al., 2000) to further develop the cohesion model. The literature review yielded six potential causal influences which appear to have measurement items present in the JIS instrument. In summary, perceived cohesion will be assessed as a dependent variable, *esprit de corps*/morale, based on the aggregation of suspected causal factors, described below.

### **Stability.**

Stability is assessed simply as the number of base reassignments, or, in military terms, permanent changes of station (PCS). It is expected that a greater number of PCS moves will be positively associated to greater instability.

### **Location.**

There may exist among AF personnel a perception that some bases are “better” than others, i.e., more preferable as an assignment location, but evaluation of such a subjective concept is beyond the scope of the present effort. However, survey respondents did indicate whether they were assigned to an overseas base or installation, or to a base or installation within the CONUS. The presence of this data element allows for testing the hypothesis that overseas-assigned personnel perceive greater cohesion due to lack of immediate comparability to private sector job opportunities.

### **Education and Training.**

Education and training for perceived cohesion relates to military-specific, or job-related training; it specifically excludes civilian schooling opportunities, which is placed under interrole conflict. It is believed from the literature review that the enhancement of job skills and job knowledge, through a training or education process, will affect a



worker's perceived utility within his or her job, thereby influencing perceived cohesion. Scale items available from the JIS instrument to assess this component include the following two factors: military related education and training, and training/experience of unit personnel.

### **Unit Readiness.**

As discussed in Chapter 2, Sarkesian (1980) notes, "It is difficult to conceive of a cohesive military unit which is not at an adequate level of readiness" (p. 11). The JIS offers a single response item to assess this factor, also named unit readiness.

### **Unit Resources.**

Unit resources appears to bear some similarity with unit readiness, but the literature distinguishes between the two as discussed in Chapter 2. Further, Knouse et al. (1998) speculate that adequate resource provisioning provides an opportunity for success to the group and term it as "...crucial to developing task cohesion" (pp. 12, 19); hence, it is assessed using the single response item from the JIS bearing the same name, unit resources.

### **Leadership.**

The value of leadership to cohesion is well established in the literature (e.g., Cartwright, 1968; Knouse et al., 1998; Oliver et al., 2000). The JIS provides the opportunity to assess leadership at three levels with the following three response items: leadership of immediate supervisor, leadership at unit level, and senior Air Force leadership.

## **Statistical Techniques**

Since the data to be analyzed are nominal in nature, nonparametric statistical techniques are appropriate (Fienberg, 1978). In the following chapter, the data will be analyzed initially by conducting a measurement scale item reliability assessment to ensure satisfactory Cronbach coefficient alphas exist within each of the three hypothesized constructs (Nunnally, 1978). Surviving measurement items will then be subjected to a principal components analysis, or factor analysis, to check for measurement validity. The components that emerge from the factor analysis will then be evaluated using contingency table analysis (CTA), a means to evaluate objectively cross-classified categorical data against each other by comparing multinomial count data classified by two different categorical scales (Shannon, 2001). The benefit of using CTA is in observing the emergence of patterns of relationships, which should prove valuable to future researchers in furthering military retention research.

## **Sample Size**

The population of interest numbered over 10,000, and a large portion was targeted by the OMS for surveying with exclusions as noted previously. It is not known how many of the 10,535 AF IS members were initially deselected from the solicitation lists. Further, although the survey was theoretically mandatory, it is not evident what actions SCM's employed at their respective base or installation to ensure survey compliance; moreover, no action was taken against personnel for failure to complete the survey. Reliability checks of the completed surveys by OMS analysts further pared the response rate through elimination of survey responses deemed unreliable due to reasons

such as patterned responses. The post-quality control sample size provided from the OMS to the researcher resulted in 3,082 survey responses, giving an overall response rate of 29.2 percent. However, initial analysis by the researcher revealed that 572 respondents indicated a retirement intention to the JIS question, “Do you plan to reenlist at the end of your current enlistment?” Elimination of these responses resulted in a total usable sample size of 2,510 individuals, dropping the response rate to 23.8 percent.

In order to compute the required sample size for a 99 percent confidence interval, an appropriate power analysis formula was utilized (McClave, Benson, & Sincich, 2001:320):

$$n := \frac{N \cdot (Z^2) \cdot p \cdot (1 - p)}{(N - 1) \cdot (d^2) + (Z^2) \cdot p \cdot (1 - p)}$$

where: n = required sample size  
N = population (10,535)  
p = maximum sample size factor (.5)  
d = desired tolerance (.05)  
z = factor of assurance (2.326) for a 99 percent confidence interval

Applying the formula to the data for this study, the following n was determined:

$$n := \frac{10535 \cdot (2.326^2) \cdot .5 \cdot (1 - .5)}{(10535 - 1) \cdot (.05^2) + (2.326^2) \cdot .5(1 - .5)}$$

$$n = 515$$

The power analysis reveals that a sample size of 515 is required to achieve a 99 percent confidence interval for this study. Therefore, the sample used consisting of over 2,500 responses is well over the required sample size.

## **Summary**

This chapter described the research design and methodology used to measure work exhaustion, interrole conflict, and perceived cohesion as moderators to job satisfaction and turnover intention of AF IS personnel. The theory posited is that these factors function as independent influences on the job satisfaction-to-turnover intention relationship of AF IS enlisted personnel and that, further, the AF survey instrument currently used may lack significant measurement factors. Chapter 4 discusses the analysis of the survey data. Results of the data analysis will then be discussed in Chapter 5 along with the limitations of the research, implications for the AF, implications for researchers, and suggestions for future research.

## **IV. Data Analysis**

### **Overview**

This chapter examines the results of the JIS survey and describes the statistical processes used to evaluate the data. Processes used included scale reliability assessments, exploratory factor analyses, and contingency table analysis for each of the theorized constructs of perceived cohesion, work exhaustion, and interrole conflict. Each hypothesis posited in Chapter 2 is analyzed using results of the statistical analyses.

### **Survey Results**

The previous chapter offered a detailed examination of the JIS survey process. As noted previously, the survey was intended for a majority of each of the career fields under survey, and furthermore, the survey was considered mandatory although no action was taken against non-takers. It is somewhat surprising, then, that the overall response rate was only 29.2 percent and just 23.8 percent after removal of unusable responses. By comparison, Wynne (2002), in a study of the same population of AF IS enlisted personnel, obtained an overall response rate of 27.6 percent and a usable response rate of 26.9 percent even though his survey was voluntary and anonymous (p. 45). It could be that Wynne obtained a higher usable response rate, due to the fact that his survey was solicited directly by the researcher to each prospective respondent via an electronic mail message, or that his survey was web-based; however, it is beyond the scope of the present effort to explore this question.

Referencing the JIS questions presented in Appendix C, note that a survey respondent, whether indicating a stay or quit intention, is presented with the same list of 31 factors and asked to pick whether any of them influenced their stay or quit decision. For each factor the respondent selects, the respondent is asked to provide a relative weight for that factor ranging from 1, slight influence; 2, moderate influence; or 3, strong influence. The respondent is also allowed to provide write-in comments for other factors not captured in the extant list of 31 predetermined factors; however, a content analysis and assessment of those factors is beyond the scope of the present effort. A respondent is presented the appropriate list, stay factors or quit factors, depending solely on their response to the JIS survey question, “Do you plan to reenlist at the end of your current enlistment?” The quit list is presented to those who opt that they will either definitely or probably not reenlist, and the stay list—again, containing the same factors—is presented to those indicating an intention to reenlist.

However, even though the factors are identical in nomenclature, the responses are captured into separate database fields. In other words, a response for, say, military lifestyle as a stay factor is coded into a different database field than is the response for the quit-factor for military lifestyle. Thus, since each of the factors are identically named and identically weighted, it is assumed that if the stay and quit factors are combined into a single response variable, the range can be retained accurately by simply reverse coding the separation factors from positive coefficients to negative coefficients and leaving the retention factors as positive coefficients. Hence, for each of the 31 factors, the range can be conceptualized effectively as ranging from  $-3$  to  $+3$ , with a 0 response indicating simply that that particular factor did not influence the stay or quit intention (i.e., all null

responses were recoded with a zero value). Following this logic, the researcher recoded the responses from two database fields into a single database field for each of the 31 predetermined factors. Further, in order to maintain scale integrity with the JIS Likert-type measurement items, the researcher recoded the responses for the seven-response questionnaire items from (0 to 7) to (-3 to 3) and the five-response item from (2 to 5) to (-2, -1, 1, 2). The recoded items are presented below in Table 3.

**Table 3: JIS Questionnaire Recoding**

JIS Measurement Item	Response	Original Value	Recoded Value
Are you assigned to a base or installation which is located outside the continental U.S.?	No	9	0
	Yes	1	1
How do you find your job?	Extremely Dull	1	-3
	Very Dull	2	-2
	Fairly Dull	3	-1
	So-So	4	0
	Fairly Interesting	5	1
	Very Interesting	6	2
	Extremely Interesting	7	3
How does your job utilize your training?	Not At All	1	-3
	Very Little	2	-2
	Fairly Well	3	-1
	Quite Well	4	0
	Very Well	5	1
	Excellent	6	2
	Perfectly	7	3
How satisfied are you with the sense of accomplishment you gain from your work?	Extremely Dissatisfied	1	-3
	Very Dissatisfied	2	-2
	Slightly Dissatisfied	3	-1
	Neither Satisfied Nor Dissatisfied	4	0
	Slightly Satisfied	5	1
	Very Satisfied	6	2
	Extremely Satisfied	7	3
Do you plan to reenlist at the end of your current enlistment?	Will Retire (I will have completed at least 20 years' service)	1	(purged)
	Definitely Will Not Reenlist	2	-2
	Probably Will Not Reenlist	3	-1
	Probably Will Reenlist	4	1
	Definitely Will Reenlist	5	2

Note in the table above that any survey response indicating an intention to retire was removed from the database. Further, since “undecided” was not a valid response option to the question, “Do you plan to reenlist at the end of your current enlistment,” it was assumed that if it had been included, the recoded scale would have been a five-item Likert scale vice a four-item scale (with deletion of the retires), with “undecided” being coded as a zero. Hence, the recoded scale does not include zero as a valid response, and the integrity of the scale retains an interval value of one since undecided can be assumed to equal a value of zero. However, since a zero response (undecided) was not allowed, the response scale for that item will contain some undetermined measure of error since it was not possible to capture an undecided turnover intention on the original JIS instrument.

### Descriptive Statistics

Means, standard deviations, and correlation coefficients for the original, unmediated, hypothesized model appear below in Tables 4 through 6. Construct measurement items are defined at Appendix E. For each of the tables, all correlations are significant at the 0.01 level (2-tailed) unless otherwise indicated.

**Table 4: Work Exhaustion Descriptive Statistics**

<b>Work Exhaustion</b>	<b>Means</b>	<b>Std Dev's</b>	<b>WE1</b>	<b>WE2</b>	<b>WE3</b>	<b>WE4</b>	<b>WE5</b>	<b>WE6</b>	<b>WE7</b>	<b>WE8</b>
WE1	-0.13	0.84	1							
WE2	-0.15	0.84	0.429	1						
WE3	0.11	1.10	0.376	0.399	1					
WE4	-0.40	1.61	0.088	0.077	0.127	1				
WE5	-0.12	1.24	0.392	0.323	0.377	0.173	1			
WE6	0.13	1.17	0.333	0.336	0.348	0.135	0.500	1		
WE7	-0.23	1.81	0.402	0.402	0.429	0.082	0.491	0.488	1	
WE8	0.49	1.47	0.322	0.323	0.335	0.093	0.362	0.384	0.542	1



**Table 5: Interrole Conflict Descriptive Statistics**

Interrole Conflict	Means	Std Dev's	IC1	IC2	IC3	IC4	IC5
IC1	0.50	1.41	1				
IC2	0.03	0.67	0.211	1			
IC3	0.01	0.83	0.221	0.355	1		
IC4	0.08	1.35	0.354	0.211	0.275	1	
IC5	-0.03	1.05	0.288	0.252	0.287	0.345	1

**Table 6: Perceived Cohesion Descriptive Statistics**

Perceived Cohesion	Means	Std Dev's	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10
PC1	0.02	1.30	1									
PC2	-0.01	0.92	0.293	1								
PC3	0.30	0.46	-0.004**	0.029**	1							
PC4	0.53	1.43	0.423	0.280	-0.037**	1						
PC5	0.02	1.07	0.407	0.251	0.003**	0.456	1					
PC6	-0.02	0.49	0.308	0.219	0.020**	0.213	0.332	1				
PC7	-0.10	0.75	0.371	0.229	-0.032**	0.303	0.431	0.529	1			
PC8	0.07	1.09	0.499	0.234	-0.023**	0.367	0.414	0.291	0.367	1		
PC9	-0.08	1.11	0.517	0.276	-0.046*	0.383	0.441	0.349	0.447	0.557	1	
PC10	-0.08	0.91	0.411	0.270	-0.015**	0.321	0.383	0.314	0.354	0.402	0.548	1

\* Correlation is significant at the 0.05 level (2-tailed)

\*\* Correlation is insignificant

Variable frequency counts are presented at Appendix F for all 62 of the separation and retention factors. The counts include the aggregates by weighting factor by variable as well as the percentage of weighting factors selected. The reader should view the frequency counts with the understanding that survey respondents were presented with either the separation factor list or the reenlistment factor list contingent upon their response to the question as to whether they intended to reenlist or not. In total, of 2,510 usable responses, 1,030 respondents, or 41.04 percent of the sample, indicated a separation intention, and 1,480 respondents, or 58.96 percent of the sample, indicated a reenlistment intention.

### **Construct Item Reliability.**

As discussed in the previous chapter, the measurement scales used in the present study to assess work exhaustion, interrole conflict, and perceived cohesion are derived from the secondary data set using rationale from the literature. As such, the scales cannot be compared directly to existing studies for reliability assessment. Nevertheless, analysis of the inter-item reliabilities of the measurement scales yielded respectable Cronbach coefficient alpha's, presented below in Table 7 (Nunnally, 1978). Two of the three scales, perceived cohesion and work exhaustion, scored above the generally accepted 0.7 threshold; interrole conflict, at 0.64, was just below the 0.7 threshold (Nunnally, 1978). Also shown are alpha's if individual items were removed from the scale. For work exhaustion, scale reliability improves to 0.81 if the item WE4, "How does your job utilize your training?" is removed. However, doing so would result in the loss of the role ambiguity antecedent, so the factor will be retained for inclusion into the next step, an exploratory factor analysis. Similarly, for the perceived cohesion construct, deletion of a single-item measure would improve scale reliability, but would also at the same time result in the loss on an antecedent. For perceived cohesion, removal of PC3, location of assignment, would improve scale reliability from 0.80 to 0.84, only a marginal gain, so the factor will be retained for inclusion into the factor analysis to follow. It should be noted that since differing scales are utilized to assess perceived cohesion, i.e., all items are multiple-response variables except for one binary response variable, the values were normalized prior to analysis as suggested by Judge, Thoresen, Pucik, and Welbourne (1999:113).

**Table 7: Scale Reliabilities**

<b>Work Exhaustion (<math>\alpha = .77</math>)</b>	<b><math>\alpha</math> if Item Deleted</b>	<b>Interrole Conflict (<math>\alpha = .64</math>)</b>	<b><math>\alpha</math> if Item Deleted</b>	<b>Perceived Cohesion (<math>\alpha = .80</math>)</b>	<b><math>\alpha</math> if Item Deleted</b>
WE1	.75	IC1	.59	PC1	.77
WE2	.75	IC2	.62	PC2	.80
WE3	.74	IC3	.59	PC3	.84
WE4	.81	IC4	.55	PC4	.79
WE5	.72	IC5	.57	PC5	.78
WE6	.73	--	--	PC6	.79
WE7	.71	--	--	PC7	.78
WE8	.73	--	--	PC8	.78
--	--	--	--	PC9	.77
--	--	--	--	PC10	.78

**Exploratory Factor Analysis.**

According to Hair, Anderson, Tatham, and Black (1995), multivariate factor analysis is a useful tool in exploring the underlying relationships or correlations among many variables and summarizing those that exhibit intra-relationships into dimensions called factors, or components. An exploratory factor analysis using principal components analysis was conducted for each of the theorized constructs using SPSS version 11.5 for Windows with all of the theorized variables as discussed above. Each analysis was set up to use orthogonal (Varimax) rotation, which, according to SPSS, seeks to minimize the number of variables that have high loadings on each component and simplifies the interpretation of the factors without losing theoretical content. Also, according to Kachigan's (1991) rationale and convention, the factor analysis was set up to extract only those components with Eigenvalues over 1.0. Further, tests for the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and the Bartlett's Test of Sphericity were included in the analyses. According to SPSS, the KMO assesses the proportion of variance among the different variables that might be caused by underlying factors. A

higher KMO value on the zero-to-one range indicates that a factor analysis might prove useful in extracting components; Hair et al. (1995) set the minimum acceptable KMO score at .5, and SPSS specifies that scores below .5 indicate that a factor analysis will probably not be useful. Also, according to SPSS, Bartlett's test, a cross-check to ensure the variables used do not constitute an identity matrix and are therefore unrelated, indicates that factor analysis might be useful if significance levels less than 0.05 are found. Hence, these two tests will be run simultaneously with the factor analyses as support for the results. Results from each construct's analysis are discussed next.

### **Work Exhaustion Factor Analysis.**

The KMO score for work exhaustion, using all theorized variables in the analysis, was 0.867, and the Bartlett significance score was 0.000; thus, factor analysis is indicated. A factor analysis was conducted, extracting a single component; therefore, a rotated component extraction matrix is not available. Results of the total explained variance and component extraction are presented below in Tables 8 and 9, respectively.

**Table 8: Work Exhaustion Total Explained Variance**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.415	42.693	42.693	3.415	42.693	42.693
2	.987	12.338	55.031			
3	.821	10.256	65.288			
4	.682	8.529	73.817			
5	.623	7.788	81.604			
6	.577	7.209	88.813			
7	.480	6.002	94.815			
8	.415	5.185	100.000			

**Table 9: Work Exhaustion Component Extraction**

	Component
	1
pay & allowances (WE7)	.781
recognition of efforts (WE5)	.718
promotion opportunities (WE6)	.702
bonus or special pay (WE8)	.670
work schedule (WE3)	.666
unit manning (WE1)	.659
additional duties (WE2)	.647
How Does Your Job Utilize Your Training (WE4)	.223

The single component extracted, accounting for approximately 43 percent of the variance, is significantly loaded with all seven theorized variables of both fairness of rewards (WE5, WE6, WE7, WE8) and perceived workload (WE1, WE2, WE3).

According to Tinsley and Tinsley (1987), the minimum threshold for retaining a variable in a factor is .3; thus, the single variable used to assess role ambiguity, “How does your job utilize your training,” was insignificant. Hence, the data support a single construct, work exhaustion, comprised of multidimensional elements of both perceived workload and fairness of rewards. Interestingly, the top four factors, three of which loaded above .7, make up the fairness of rewards antecedent to work exhaustion, and the following three factors comprise perceived workload, suggesting that perceived fairness of rewards plays a significant role in work exhaustion among AF IS enlisted personnel.

The results of the factor analysis suggest retention of seven of the eight variables; the one exclusion is WE4. A composite score will be computed for each survey respondent using the recoded scale values as discussed previously. Since greater negative values reflect more influence on an individual’s quit intention and, conversely, greater positive values reflect more influence on his or her stay intention, the composite

score will range from maximum perceived work exhaustion ( $-3 \times 7 = -21$ ) to minimum perceived work exhaustion ( $3 \times 7 = 21$ ). As a research consideration, then, the results can be divided into thirds and viewed conceptually as high work exhaustion (-21 to -8), moderate work exhaustion (-7 to 7), and low work exhaustion (8 to 21). The nominal nature of the data are retained by recoding these ranges as 1, 2, and 3 for low, moderate, and high perceived work exhaustion scores, respectively, for subsequent contingency table analysis.

### **Interrole Conflict Factor Analysis.**

The KMO score for interrole conflict, using all theorized variables in the analysis, was 0.738, and the Bartlett significance score was 0.000; thus, factor analysis is indicated. A factor analysis was conducted, extracting a single component; therefore, a rotated component extraction matrix is not available. Results of the total explained variance and component extraction are presented below in Tables 10 and 11, respectively.

**Table 10: Interrole Conflict Total Explained Variance**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.122	42.438	42.438	2.122	42.438	42.438
2	.907	18.136	60.574			
3	.706	14.117	74.691			
4	.655	13.099	87.790			
5	.611	12.210	100.000			

**Table 11: Interrole Conflict Component Extraction**

	Component
	1
location of present assignment (IC4)	.682
number/duration of TDYs or deployments (IC5)	.676
spouse's career (IC3)	.657
off-duty education and training (IC1)	.633
childcare needs (IC2)	.607

All theorized measurement items for interrole conflict (IC1, IC2, IC3, IC4, IC5) loaded significantly as a single component accounting for over 42 percent of the variance. The results of the factor analysis suggest a single latent component and call for retention of all five variables (Tinsley & Tinsley, 1987). A composite score will be computed for each survey respondent using the recoded scale values as discussed previously. Since greater negative values reflect more influence on an individual's quit intention and, conversely, greater positive values reflect more influence on his or her stay intention, the composite score will range from maximum perceived interrole conflict ( $-3 \times 5 = -15$ ) to minimum perceived interrole conflict ( $3 \times 5 = 15$ ). As a research consideration, then, the results can be divided into thirds and viewed conceptually as high interrole conflict (-15 to -6), moderate interrole conflict (-5 to 5), and low interrole conflict (6 to 15). The nominal nature of the data are retained by recoding these ranges as 1, 2, and 3 for low, moderate, and high perceived interrole conflict scores, respectively, for subsequent contingency table analysis.

#### **Perceived Cohesion Factor Analysis.**

The KMO score for perceived cohesion, using all normalized variables in the analysis, was 0.883, and the Bartlett significance score was 0.000; thus, factor analysis is

indicated. Results of the total explained variance and unrotated component extraction are presented below in Tables 12 and 13, respectively, and the Varimax-rotated component extraction table, showing extraction of two components, appears in Table 14.

**Table 12: Perceived Cohesion Total Explained Variance**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Tot	% of Var	Cum %	Tot	% of Var	Cum %	Tot	% of Var	Cum %
1	3.984	39.835	39.835	3.984	39.835	39.835	3.983	39.835	39.835
2	1.018	10.182	50.018	1.018	10.182	50.018	1.018	10.183	50.018
3	.953	9.533	59.551						
4	.828	8.280	67.831						
5	.752	7.520	75.351						
6	.616	6.156	81.507						
7	.533	5.332	86.839						
8	.478	4.776	91.615						
9	.455	4.554	96.170						
10	.383	3.830	100.00						

**Table 13: Perceived Cohesion Component Extraction (Unrotated)**

	Component	
	1	2
leadership at unit level (PC9)	.779	-.092
esprit de corps/morale (PC1)	.721	-.031
leadership of immediate supervisor (PC8)	.708	-.087
training/experience of unit personnel (PC5)	.696	.018
senior air force leadership (PC10)	.679	-.028
unit resources (PC7)	.678	.074
military related education and training (PC4)	.624	-.103
unit readiness (PC6)	.582	.210
number of PCS moves (PC2)	.471	.173
Assigned to base/installation outside CONUS (PC3)	-.028	.954



**Table 14: Perceived Cohesion Component Extraction (Rotated)**

	Component	
	1	2
leadership at unit level (PC9)	.779	-.089
esprit de corps/morale (PC1)	.721	-.028
leadership of immediate supervisor (PC8)	.709	-.084
training/experience of unit personnel (PC5)	.696	.021
senior air force leadership (PC10)	.679	-.025
unit resources (PC7)	.677	.077
military related education and training (PC4)	.624	-.101
unit readiness (PC6)	.582	.212
number of PCS moves (PC2)	.470	.175
Assigned to base/installation outside CONUS (PC3)	-.032	.954

The Varimax-rotated component matrix shows two distinct components and accounts for over 50 percent of the variance. The first component, accounting for approximately 40 percent of the variance, appears to be made up significantly of organizational characteristics (PC1, PC4, PC5, PC6, PC7, PC8, PC9, PC10); only one organizational characteristic, number of PCS moves (PC2), loaded below .5, still above the .3 minimum (Tinsley & Tinsley, 1987). However, since PC2 loaded well below the other eight variables, it will be removed from further analysis in order to seek a more parsimonious model. The second component is very clearly a single-factor construct reflecting assignment location within or outside the CONUS and exhibits poor correlation with the other variables. Hence, variable PC3, likely measuring something other than perceived cohesion, will be removed from further examination.

The results of the factor analysis suggest retention of eight of the original ten variables; the two exclusions are PC2 and PC3. A composite score will be computed for each survey respondent with the remaining items, using the recoded scale values as

discussed previously. Since greater negative values reflect more influence on an individual's quit intention and, conversely, greater positive values reflect more influence on his or her stay intention, the composite score will range from no perceived cohesion ( $-3 \times 8 = -24$ ) to perfect perceived cohesion ( $3 \times 8 = 24$ ). As a research consideration, then, the results can be divided into thirds and viewed conceptually as low perceived cohesion ( $-24$  to  $-9$ ), moderate perceived cohesion ( $-8$  to  $8$ ), and high perceived cohesion ( $9$  to  $24$ ). The nominal nature of the data are retained by recoding these ranges as 3, 2, and 1 for low, moderate, and high perceived cohesion scores, respectively, for subsequent contingency table analysis. Note that since perceived cohesion is thought to be a desirable characteristic, unlike work exhaustion or interrole conflict, the recoding of the perceived cohesion categories was reversed.

### **Hypothesis Testing**

According to McClave et al. (2001), two-way contingency table analysis (CTA), a nonparametric statistical method, presents a means to objectively evaluate cross-classified categorical data against each other by comparing multinomial count data classified by two different categorical scales (p. 945). Shannon (2001) explains that the CTA "crosstabulation can be used to determine the extent to which two or more categorical variables are related" (p. 145). Contingency tables are presented as a series of rows and columns, with each row/column intersection representing the relationship between the categorical data meeting the requirements for that cell for both of the variables used in the analysis. According to Fienberg (1978), CTA has been researched thoroughly since Bartlett first studied it in 1935 (p. 1; referencing Bartlett, 1935) and is a

prime method for assessing data whose response variable is categorical in nature and whose explanatory variables are also categorical (Fienberg, 1978:3). Such is the case with testing the hypotheses in the present study.

There are several useful statistics from a CTA that aid in assessing the nonparametric relationship between the response variable (the hypothesized dependent variable) and the explanatory variable (the hypothesized independent variables). The most commonly used method, the Pearson chi-square statistic, “is used to test the null hypothesis that two categorical variables are not related” (Shannon, 2001). The Pearson chi-square ( $\chi^2$ ) value is a result of comparing observed cell counts against the expected value for each cell in the crosstabulation if the two variables were unrelated, or independent, of each other. Shannon (2001) explains that the  $\chi^2$  value increases as the difference increases between the observed and expected values; hence, the probability of randomness, or chance, decreases as the chi-square value increases (p. 146). Similar to the Pearson chi-square, and interpreted in the same manner, is the Likelihood-ratio chi-square (LR).

Another useful statistic to measure the magnitude of the relationship between nominal variables is the contingency coefficient. According to Shannon (2001), the contingency coefficient (CC) should be used when assessing two categorical variables that are not dichotomous (p. 146). The CC scale ranges from 0 to 1—the relationship is weaker as it approaches 0, and stronger as it approaches 1.

Yet another useful measure reported by CTA is lambda. Lambda ( $\lambda$ ) is known as the proportionate reduction in error measure and “indicates the extent to which error is

reduced in predicting one variable using the other variable” (Shannon, 2001:146).

Similar to the CC, lambda values range from 0 to 1 with values approaching 1 desirable.

Finally, in each crosstabulation cell of the CTA, unstandardized residuals appear. According to the SPSS online help, a positive residual is an indication that that particular cell contains too many cases than it should if the variables were independent of each other.

Since the present study seeks to evaluate all three hypothesized constructs against job satisfaction, three contingency tables are necessary to explore the relationships extant in the secondary data set being utilized. As a caution, however, it should be noted that CTA, known as crosstabs in SPSS, merely present observed relationships—they cannot be used to claim or refute causal relationships (McClave et al., 2001:961). Nevertheless, the results should provide insight for future researchers to tailor their models and efforts. The evaluative statistics, as described above, appear in a table following presentation of the contingency table with the exception of the unstandardized residuals, which appears in each cross-section cell of the CTA.

### **Hypothesis 1: Work Exhaustion x Job Satisfaction.**

The crosstabulation appearing below in Table 15 shows the product-multinomial relationship (Fienberg, 1978:15) between work exhaustion (WE) and job satisfaction (JS). JS is considered as the response variable (dependent variable) and WE is the explanatory (independent) variable. Table 16 presents the evaluative statistics.

**Table 15: WE\*JS Contingency Table**

		How Satisfied with Sense of Accomplishment						Total
		Extremely Dissat	Very Dissat	Slightly Dissat	Neither Sat nor Dissat	Slightly Sat	Very Sat	Extremely Sat
WE Categories: Low	Count	5	6	14	24	55	95	35
	Expected Count	13.5	18.8	22.6	25.5	56.5	75.1	21.9
	% within WE Category	2.1%	2.6%	6.0%	10.3%	23.5%	40.6%	15.0%
	% within How Satisfied with Sense of Accomplishment	3.4%	3.0%	5.8%	8.8%	9.1%	11.8%	14.9%
	% of Total	2%	2%	.6%	1.0%	2.2%	3.8%	1.4%
Mod	Residual	-8.5	-12.8	-8.6	-1.5	-1.5	19.9	13.1
	Count	95	155	196	221	498	644	183
	Expected Count	115.1	160.3	192.1	217.5	480.9	639.7	186.5
	% within WE Category	4.8%	7.8%	9.8%	11.1%	25.0%	32.3%	9.2%
	% within How Satisfied with Sense of Accomplishment	65.5%	76.7%	81.0%	80.7%	82.2%	79.9%	77.9%
High	% of Total	3.8%	6.2%	7.8%	8.8%	19.8%	25.7%	7.3%
	Residual	-20.1	-5.3	3.9	3.5	17.1	4.3	-3.5
	Count	45	41	32	29	53	67	17
	Expected Count	16.4	22.9	27.4	31.0	68.6	91.2	26.6
	% within WE Category	15.8%	14.4%	11.3%	10.2%	18.7%	23.6%	6.0%
Total	% within How Satisfied with Sense of Accomplishment	31.0%	20.3%	13.2%	10.6%	8.7%	8.3%	7.2%
	% of Total	1.8%	1.6%	1.3%	1.2%	2.1%	2.7%	.7%
	Residual	28.6	18.1	4.6	-2.0	-15.6	-24.2	-9.6
	Count	145	202	242	274	606	806	235
	Expected Count	145.0	202.0	242.0	274.0	606.0	806.0	235.0
Total	% within WE Category	5.8%	8.0%	9.6%	10.9%	24.1%	32.1%	9.4%
	% within How Satisfied with Sense of Accomplishment	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	5.8%	8.0%	9.6%	10.9%	24.1%	32.1%	9.4%

**Table 16: WE\*JS CTA Statistics**

Statistic	Value	Significance
$\chi^2$	113.641	.000
LR	100.118	.000
CC	.208	.000
$\lambda$ (symmetric)	.000	.000

Note: Computed using 12 degrees of freedom.

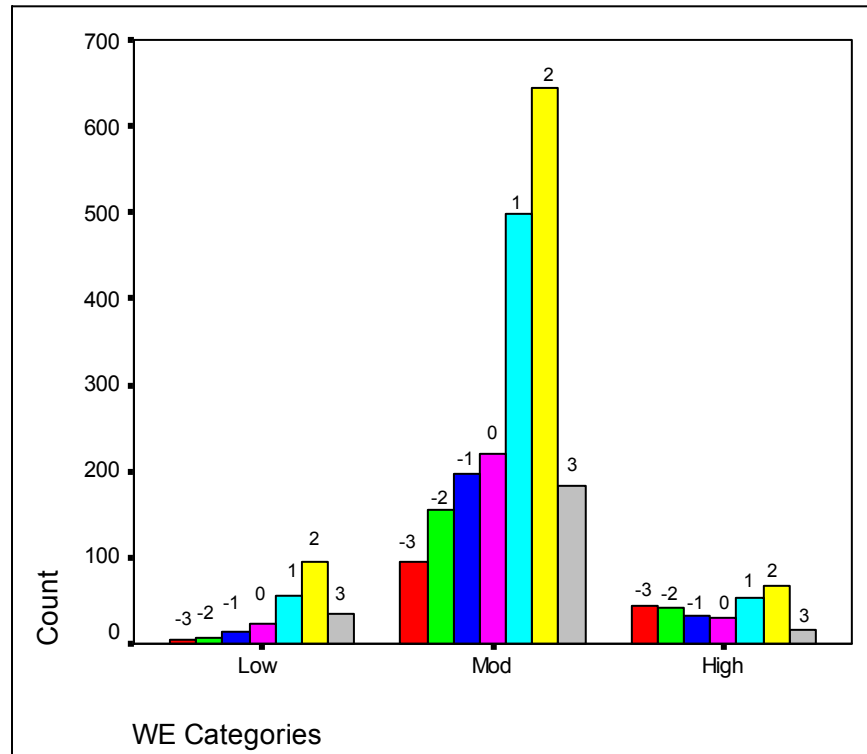
Hypothesis 1 stated that higher work exhaustion scores, as measured by the aggregated component scores of perceived workload, role ambiguity, and fairness of rewards, will be higher statistically in significance to lower job satisfaction than will lower aggregated work exhaustion scores. As expected, the number of workers in the low WE range expressing either extreme, very, or slight job dissatisfaction was significantly lower than the total in the low WE range expressing either extreme, very, or slight JS: 79.1 percent were satisfied, and only 10.7 percent were dissatisfied; 10.3 percent were neither satisfied nor dissatisfied. Moreover, those respondents in the high WE category show a dramatic decline in JS—41.5 percent are either extremely, very, or slightly dissatisfied, an increase of over 30 percent from those respondents who are in the low WE category and are also dissatisfied. Similarly, the number of respondents in the high WE category expressing either slight, very, or extreme JS was 48.3 percent, a decline of more than 30 percent from the satisfied respondents in the low WE category.

The evaluative statistics presented above, however, provide mixed results that a relationship exists between WE and JS. Specifically,  $\chi^2 = 113.641$  ( $p < .001$ ) and  $LR = 100.118$  ( $p < .001$ ) indicate rejection of the null hypothesis that the two variables are not related (Shannon, 2001), but the values  $CC = .208$  ( $p < .001$ ) and  $\lambda = .000$  ( $p < .001$ ), both well below the desired level of 1.0, imply a weak relationship exists between the

WE and JS. The lambda ( $\lambda$ ) value in particular, at .000, seems to indicate a lack of WE score predicting the value of JS.

The residuals, though, as shown above, exhibit an interesting pattern. The pattern of observed positive residuals, suggesting dependency of the variables for the particular cells that contain positive residuals, shows positive residual coefficients for low WE scores cross tabulated with positive JS responses, and exactly the reverse for high WE scores cross-tabulated with low JS scores. Further, over 90 percent of respondents fit into either the moderate or high WE categories with approximately 11 percent of those in the high WE category.

Understanding this distribution is perhaps better facilitated graphically. Figure 9 below displays the distribution of JS within WE categories. The vertical bars represent the number of respondents per category, and are arranged left to right according to JS scores, -3 to +3.



**Figure 9: WE\*JS Distribution**

A look at the chart above shows a roughly normal distribution of JS for those in the moderate WE category, with some right skewness evident. However, those in the low WE category show a marked skewness toward higher JS, and those in the high WE category demonstrate comparatively low JS. Taken together, the evaluative statistics lend partial support for hypothesis 1.

**Hypothesis 2: Interrole Conflict x Job Satisfaction.**

The cross-tabulation from comparing the interrole conflict (IC) categories against JS, with JS as the response variable, appears below in Table 17.



**Table 17: IC\*JS Contingency Table**

		How Satisfied with Sense of Accomplishment					Total
		Extremely Dissat	Very Dissat	Slightly Dissat	Neither Sat nor Dissat	Slightly Sat	Extremely Sat
IC Categories Low	Count	6	10	13	20	44	70
	Expected Count	11.3	15.8	18.9	21.4	47.3	62.9
	% within IC Categories	3.1%	5.1%	6.6%	10.2%	22.4%	35.7%
	% within How Satisfied with Sense of Accomplishment	4.1%	5.0%	5.4%	7.3%	7.3%	8.7%
	% of Total Residual	.2%	.4%	.5%	.8%	1.8%	2.8%
Mod	Count	124	177	216	243	534	714
	Expected Count	127.0	176.9	211.9	239.9	530.7	705.8
	% within IC Categories	5.6%	8.1%	9.8%	11.1%	24.3%	32.5%
	% within How Satisfied with Sense of Accomplishment	85.5%	87.6%	89.3%	88.7%	88.1%	88.6%
	% of Total Residual	4.9%	7.1%	8.6%	9.7%	21.3%	28.4%
High	Count	15	15	13	11	28	22
	Expected Count	6.7	9.3	11.2	12.7	28.0	37.2
	% within IC Categories	12.9%	12.9%	11.2%	9.5%	24.1%	19.0%
	% within How Satisfied with Sense of Accomplishment	10.3%	7.4%	5.4%	4.0%	4.6%	2.7%
	% of Total Residual	.6%	.6%	.5%	.4%	1.1%	.9%
Total	Count	145	202	242	274	606	806
	Expected Count	145.0	202.0	242.0	274.0	606.0	806.0
	% within IC Categories	5.8%	8.0%	9.6%	10.9%	24.1%	32.1%
	% within How Satisfied with Sense of Accomplishment	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	5.8%	8.0%	9.6%	10.9%	24.1%	32.1%

**Table 18: IC\*JS CTA Statistics**

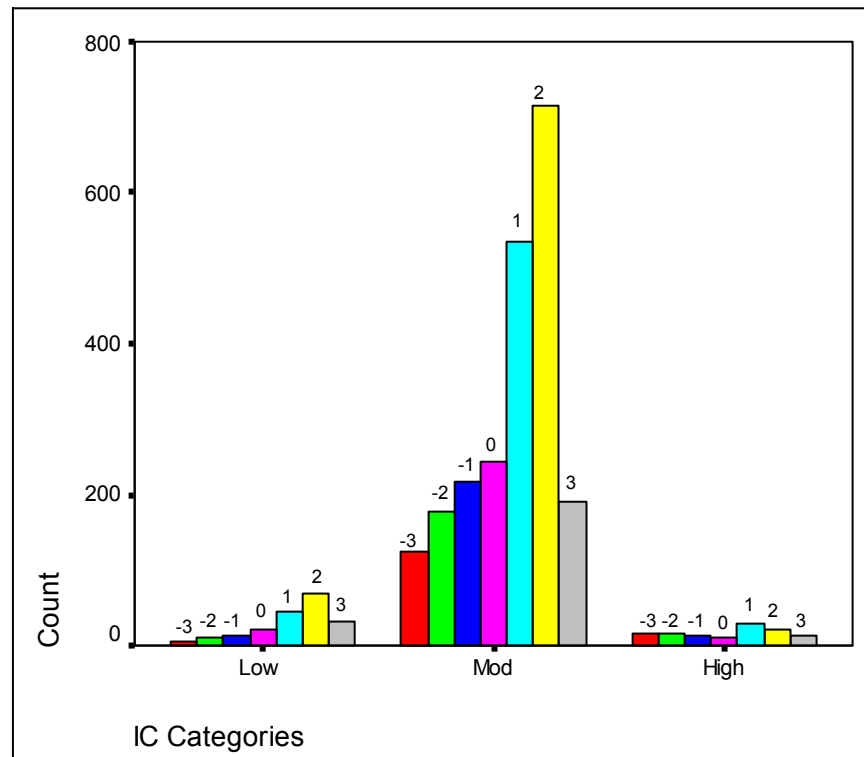
Statistic	Value	Significance
$\chi^2$	41.372	.000
LR	38.027	.000
CC	.127	.000
$\lambda$ (symmetric)	.003	.396

Note: Computed using 12 degrees of freedom.

Hypothesis 2 stated that the aggregated score of the JIS survey response items theorized to comprise interrole conflict, off-duty education and training, childcare needs, spouse's career, location of present assignment, and number/duration of TDY's and deployments, will have a statistically higher significance to lower job satisfaction than will the aggregate scores of those who do not exhibit perceived interrole conflict. While 74.9 percent of those in the low IC category exhibited either slight, very, or extreme JS, 53.4 percent of respondents in the high IC category expressed either slight, very, or extreme JS, a difference of more than 20 percent. For dissatisfaction, those low in IC made up 14.8 percent, and those in the high IC category comprised 37 percent of the category, also a difference of more than 20 percent.

The evaluative statistics, shown above, provide mixed support for a relationship between the IC categories and JS. Specifically,  $\chi^2 = 41.372$  ( $p < .001$ ) and  $LR = 38.027$  ( $p < .001$ ) provide support to reject the null hypothesis that the two variables are not related (Shannon, 2001); however, the values  $CC = .127$  ( $p < .001$ ) and  $\lambda = .003$  ( $p < .5$ ) show weak support for a relationship between the response and explanatory variables. The pattern of observed positive residuals, similar to WE x JS previously, suggests a dependency as hypothesized between low IC and high JS, and between high IC and low JS. Moreover, over 92 percent fall within either the moderate or high IC categories with just 4.6 percent scoring in the high IC category, and only 1.7 percent of the total sample

are both high in IC and either slightly, very, or extremely dissatisfied with job accomplishment.



**Figure 10: IC\*JS Distribution**

Figure 10 presents a graphic illustration of the IC x JS CTA. Those scoring high in IC comprise just 4.6 percent of the total, yet the distribution of those high in IC is far from normal; in fact, it is nearly a plateau with the exception of those indicating slight JS. Likewise, those indicating low IC, again a relatively low 7.8 percent, exhibit notable skewness toward higher job satisfaction. Taken together, the results are similar to those of the first hypothesis: the mixed results lend partial support to hypothesis 2.

### **Hypothesis 3: Perceived Cohesion x Job Satisfaction.**

Table 19 below displays the result of assessing the perceived cohesion (PC) category scores against JS, and Table 20 displays the evaluative statistics.

**Table 19: PC\*JS Contingency Table**

	How Satisfied with Sense of Accomplishment						Total
	Extremely Dissat	Very Dissat	Slightly Dissat	Neither Sat nor Dissat	Slightly Sat	Very Sat	Extremely Sat
PC Categories: High							
Count	3	3	5	19	36	62	159
Expected Count	9.2	12.8	15.3	17.4	38.4	51.1	159.0
% within PC Category	1.9%	1.9%	3.1%	11.9%	22.6%	39.0%	100.0%
% within How Satisfied with Sense of Accomplishment	2.1%	1.5%	2.1%	6.9%	5.9%	7.7%	6.3%
% of Total	.1%	.1%	.2%	.8%	1.4%	2.5%	6.3%
Residual	-6.2	-9.8	-10.3	1.6	-2.4	10.9	16.1
Mod							
Count	100	173	211	239	539	717	2176
Expected Count	125.7	175.1	209.8	237.5	525.4	698.7	2176.0
% within PC Category	4.6%	8.0%	9.7%	11.0%	24.8%	33.0%	100.0%
% within How Satisfied with Sense of Accomplishment	69.0%	85.6%	87.2%	87.2%	88.9%	89.0%	86.7%
% of Total	4.0%	6.9%	8.4%	9.5%	21.5%	28.6%	86.7%
Residual	-25.7	-2.1	1.2	1.5	13.6	18.3	-6.7
Low							
Count	42	26	26	16	31	27	175
Expected Count	10.1	14.1	16.9	19.1	42.3	56.2	175.0
% within PC Category	24.0%	14.9%	14.9%	9.1%	17.7%	15.4%	100.0%
% within How Satisfied with Sense of Accomplishment	29.0%	12.9%	10.7%	5.8%	5.1%	3.3%	7.0%
% of Total	1.7%	1.0%	1.0%	.6%	1.2%	1.1%	7.0%
Residual	31.9	11.9	9.1	-3.1	-11.3	-29.2	-9.4
Total							
Count	145	202	242	274	606	806	2510
Expected Count	145.0	202.0	242.0	274.0	606.0	806.0	2510.0
% within PC Category	5.8%	8.0%	9.6%	10.9%	24.1%	32.1%	100.0%
% within How Satisfied with Sense of Accomplishment	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
% of Total	5.8%	8.0%	9.6%	10.9%	24.1%	32.1%	100.0%

**Table 20: PC\*JS CTA Statistics**

Statistic	Value	Significance
$\chi^2$	184.729	.000
LR	146.135	.000
CC	.262	.000
$\lambda$ (symmetric)	.007	.071

Note: Computed using 12 degrees of freedom.

Hypothesis 3 stated that lower perceived cohesion scores, as measured by the aggregated component scores of *esprit de corps* (morale), stability, location, education and training, unit readiness, unit resources, and leadership, will be higher statistically in significance to lower job satisfaction than will lower aggregated perceived cohesion scores. Two of the antecedents, stability (PC2) and location (PC3), were removed after the factor analysis was conducted; hence, the modified hypothesis encompasses only *esprit de corps* (PC1), education and training (PC4 and PC5), unit readiness (PC6), unit resources (PC7), and leadership (PC8, PC9, and PC10).

The results are perhaps more dramatic than either of the first two hypotheses in that those exhibiting JS in the high PC category, 81.1 percent, was vastly larger than those exhibiting JS that fell into the low PC category, only 37.1 percent—a difference of 44 percent. For those respondents expressing dissatisfaction, only 6.9 percent fell into the high PC category while a vastly larger 53.8 percent reported low PC. Still, the numbers overall in both the low PC and high categories were low: only 175 individuals—just 7 percent—were classified as low in PC, and only 159 persons—6.3 percent—were high in PC.

The evaluative statistics provide mixed support for a relationship between the PC categories and JS. Specifically,  $\chi^2 = 184.729$  ( $p < .001$ ) and  $LR = 146.135$  ( $p < .001$ )

provide support to reject the null hypothesis that the two variables are not related (Shannon, 2001); however, the values  $CC = .262$  ( $p < .001$ ) and  $\lambda = .007$  ( $p < .01$ ) show weak support for a relationship between the response variable, JS, and the explanatory variables. The pattern of observed positive residuals, similar to both WE x JS and IC x JS previously, suggests a dependency as hypothesized between high PC and high JS, and between low PC and low JS. Moreover, over 93 percent fall within either the moderate or low PC categories with just 7 percent scoring in the low PC category, and only 3.7 percent of the total sample are both low in PC and either slightly, very, or extremely dissatisfied with job accomplishment.

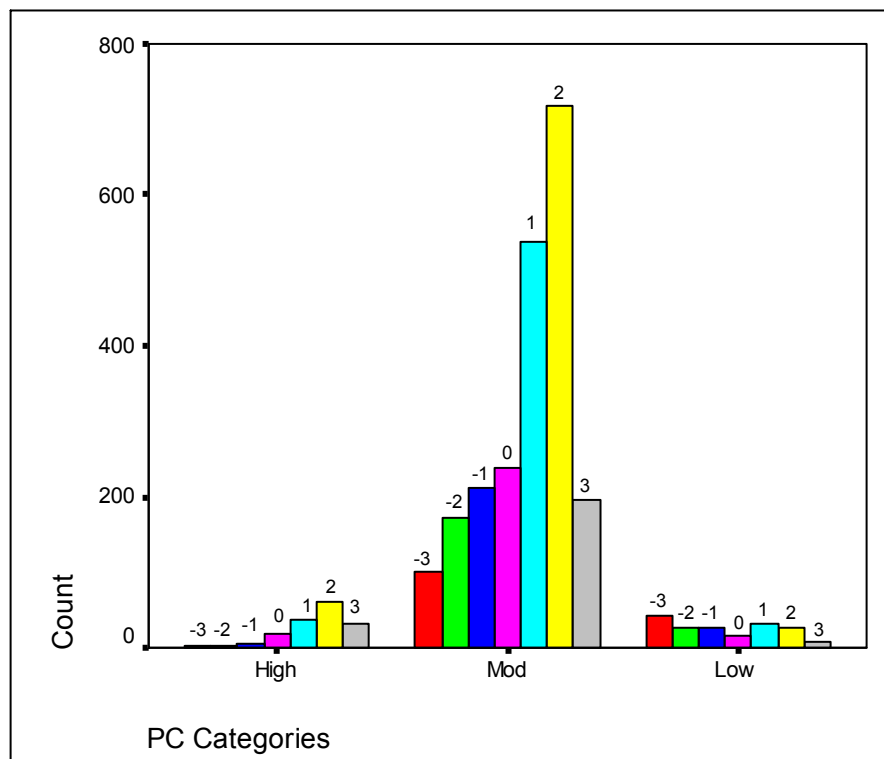


Figure 11: PC\*JS Distribution

Figure 11 presents a graphic illustration of the PC x JS CTA. Even though those scoring low in PC comprise just 7 percent of the total, the distribution shows that approximately 40 percent of those exhibiting low PC are either very dissatisfied or extremely dissatisfied. Likewise, those indicating high PC exhibit notable skewness toward higher JS with only 11 persons—a mere .4 percent of the entire sample—exhibiting both high PC and either slight, very, or extreme job dissatisfaction. The results, again, lend partial support to hypothesis 3.

### **Job Satisfaction and Turnover Intention**

The consistent and strong negative relationship between low job satisfaction and high turnover intention has been consistently and well established in the literature (e.g. Harrington, Bean, Pintello, & Mathews, 2001; Hom & Kinicki, 2001; Igbaria & Guimaraes, 1993, 1999; Lamond et al., 2001; Lee & Mowday, 1987; Maslach et al., 2001; Mobley et al., 1979; Moore, 2000). Hence, specific hypotheses concerning job satisfaction and turnover intention were not offered in the present effort. However, a simple linear regression between job satisfaction and turnover intention indicated a negative relationship, as expected ( $R^2 = .055$ ;  $F = 146.8$ ;  $p < .001$ ).

### **Summary**

This chapter analyzed the secondary data set collected for this study and briefly discussed the findings for each hypothesis. Nonparametric statistical assessment using contingency table analysis yielded partial support for all three hypotheses. The results, although non-causal in nature, seem to indicate that the vast majority of AF IS enlisted workers are moderately work exhausted, experience moderate interrole conflict, and

perceive moderate levels of cohesion. Those that were found to be experiencing high work exhaustion, high interrole conflict, and low perceived cohesion, although the total numbers were low, also reported higher levels of job dissatisfaction. The next chapter presents discussion of the findings, implications to the AF and the research community, limitations, and suggestions for future research.



## V. Conclusions and Recommendations

### Overview

The purpose of this study was to explore the relationship between work exhaustion, interrole conflict, and perceived cohesion on the job satisfaction of AF IS enlisted workers. Low job satisfaction, as widely established in the literature, is consistently and negatively associated with turnover intention. Archived survey data of AF IS professionals in the 3C0X1, 3C0X2, and 3C2X1 career fields from a recent AF-sponsored Job Inventory Survey were used for the study and included 2,510 usable responses upon which the following hypotheses were based:

*H1: Higher work exhaustion scores, as measured by the aggregated component scores of perceived workload, role ambiguity, and fairness of rewards, will be higher statistically in significance to lower job satisfaction than will lower aggregated work exhaustion scores.*

*H2: The aggregated score of the JIS survey response items theorized to comprise interrole conflict, off-duty education and training, childcare needs, spouse's career, location of present assignment, and number/duration of TDY's and deployments, will have a statistically higher significance to lower job satisfaction than will the aggregate scores of those who do not exhibit perceived interrole conflict.*

*H3: Lower perceived cohesion scores, as measured by the aggregated component scores of esprit de corps (morale), stability, location, education and training, unit readiness, unit resources, and leadership, will be higher statistically in significance to lower job satisfaction than will lower aggregated perceived cohesion scores.*

## **Discussion of Hypotheses**

*H1* proposed that high work exhaustion (WE) in enlisted AF IS workers would be greater in significance to lower job satisfaction (JS) than would be low WE scores.

Overall, the results show only a 2 percent difference between the two categories when all JS levels are included, with the high WE category accounting for 11.3 percent of the sample, or 284 out of 2,510 respondents, and low WE accounting for 9.3 percent of the sample, or 234 respondents. However, the analysis results indicate a weak relationship between WE and JS as theorized in the present model. Despite the shortcomings that may be present in either the model or the archival data set, the finding of a trend toward increased dissatisfaction with increased WE suggests that AF IS workers, like their civilian counterparts, function under heavy workloads and suffer from work exhaustion. Referencing Appendix F, it is telling that all seven of the WE factors retained for analysis (excepting WE4, “How does your job utilize your training?”), reflecting the WE antecedents of perceived workload and fairness of rewards, placed in the top half of the rank-ordered separation factors with an average WE placement of 9.6.

*H2* posited that high interrole conflict (IC) in enlisted AF IS workers would be greater in significance to lower JS than would be low IC scores. The results were similar in nature to those found with WE: workers low in IC experienced greater levels of satisfaction than did workers deemed high in IC. However, the analysis results were mixed, just as with WE, indicating a potentially weak relationship between the constructs as theorized in the present study. Further, only 4.6 percent of the entire sample reported high IC levels, and just 7.8 percent were classified with low IC levels, indicating that

non-work factors off-duty education and training, childcare needs, spouse's career, location of present assignment, and number and duration of TDYs and deployments may not be as much of a problem as expected, although location of present assignment did rank fifth among the 31 separation factors with approximately 14 percent, and half of those rating it as a strong influence. However, the average ranking of the five separation IC factors among the total list of 31 separation factors was 17.6 (WE average rank was 9.6, and PC average rank was 15). The few respondents who did report high levels of IC were demonstrably less satisfied than those reporting low IC. The fact that so few AF IS workers experience high IC may be due to several reasons. First, in the era of an all-volunteer force, enlistees likely join the service with some expectation that the military lifestyle is demanding, challenging, and potentially conflicting with their off-duty cares and concerns; thus, their rationale may be that there is little to complain about since they enlisted voluntarily. Referencing Appendix F, the data show that military lifestyle is roughly equal in influence as both a separation and retention factor: 754 (30 percent of the sample) respondents selected it as a retention factor, and 548 (21.9 percent) respondents selected it as a separation factor. Also, the AF has devoted much attention and resources to quality of life issues for AF members which might account for the low IC levels found. In fact, the top IC reenlistment factor, off-duty education and training, ranked fifth among the 31 factors with almost 30 percent selecting it as a reenlistment influence, and approximately half of those rated it as a strong influence.

*H3* stated that high perceived cohesion (PC) in enlisted AF IS workers would be greater in significance to JS than would be low PC scores. As with the previous two hypotheses, the statistical analysis yielded mixed results, indicating a potentially weak

relationship between PC and JS as theorized in the present study. However, the results did show a marked difference between satisfaction levels and PC levels, as hypothesized. The 175 workers (7 percent of the sample) found to be low in PC were far less satisfied than were the 159 respondents (6.3 percent) who were high in PC. Examining the rank-ordered factors in Appendix F, it is notable that four of the PC factors ranked among the top 10 of all separation factors: *esprit de corps*/morale, ranked sixth; leadership at unit level, ranked seventh; training/experience of unit personnel, ranked ninth; and military related education/training, ranked tenth. It is perhaps somewhat surprising that among all reenlistment factors, the PC factor of military related education/training ranked third with almost 32 percent selecting it.

### **Discussion of Research Questions**

The following research questions were presented in Chapter 1:

- 1) Can an appropriate turnover model for enlisted AF IS personnel be theorized by synthesizing elements of extant turnover models?
- 2) Does the Air Force Occupational Measurement Squadron's (AFOMS) enlisted career field survey instrument adequately capture separation factors?

The results of the data analyses appear to indicate that an appropriate turnover model for AF IS personnel has not been synthesized from the extant literature, at least not from the analytical standpoint of using the AFOMS archival data. It is possible that AFOMS surveys are not adequately capturing separation factors, especially since the JIS survey was designed primarily to update and improve personnel classification, utilization,

testing, and training, not to assess retention and separation factors (reference Appendix B).

### **Implications for the Air Force**

The pattern of increased job dissatisfaction among AF IS workers reporting high work exhaustion and low perceived cohesion, although the aggregate numbers are low overall, should be a cause for concern for the AF. Particularly, the fairness of rewards aspect of WE and the *esprit de corps*/morale and unit level leadership aspects of PC stand out as relatively strong influences on separation decisions. As for conflicts with off-duty needs, the AF has apparently made great strides in meeting the needs of its airmen, particularly with aspects of family life. However, the data analyzed was not statistically controlled for married versus unmarried persons, so the results of interrole conflict may have been higher among married AF IS members had marital status been available as a discriminator. The placement of off-duty education as the fifth highest reenlistment influence, and just seventeenth on the separation list, indicates the AF is providing both resources and opportunity for its AF IS workers to seek higher education.

Although not studied, Appendix F shows that retirement benefits, job security, and military lifestyle appear to exert strong influences on retention of AF IS workers. These findings are similar to those found by Wynne (2002) in his study of career anchors of the same population. The AF should consider focusing more energies in these areas, particularly with recruitment efforts, while at the same time addressing perceived cohesion factors such as *esprit de corps*/morale and unit leadership.

Although pay satisfaction was found to be low—it ranked first among all 31 separation factors—curiously, bonus/special pay ranked only thirteenth on the list. This finding suggests that remuneration is perhaps more complex than simply the combination of pay and huge reenlistment bonuses. There may be an underlying issue regarding pay equity, perhaps with peers of the same rank that work in non-IT jobs or with civil servants or contractors who perform the same duties. Reinforcing this speculation is the fact that civilian job opportunities ranked second among separation factors.

Finally, the mixed results from this study should prove insightful to the AF Occupational Measurement Squadron and to career field managers in tailoring their JIS survey instrument to more accurately capture separation and reenlistment factors and to more thoroughly explore the complex issues of job satisfaction and turnover intentions.

### **Implications for Researchers**

Results from this study add to the existing body of knowledge focusing on the job satisfaction-to-turnover intention relationship within the armed forces. Specifically, this study uses the Mobley et al. (1979) turnover intention model and incorporates work exhaustion, perceived cohesion, and, possibly for the first time in a military study, interrole conflict as conceptualized by Hom and Kinicki (2001).

The results of using the archival data set as provided by the AF for this study introduces the AF's Job Inventory Survey (JIS) into the domain for further study. During the course of this study, it became clear that the JIS was designed purposefully to assess conditions within enlisted career fields such as tasks performed, frequencies of tasks, and equipment used; it was not designed to address issues relating to separation and retention,

except parenthetically; nevertheless, senior AF officials apparently use JIS survey results to evaluate retention techniques and to allocate funding to retention initiatives based on perceived influences as presented by the JIS (AFOMS/OMY, 2002a; HQ USAF, 2002).

## **Limitations**

As with any study, this one has limitations that must be acknowledged. First, the data was collected via a single observation; hence, it is possible that results could change over time. Second, the survey was mandatory, and data collection included the reporting of identifying information (although identifying data were removed prior to dissemination to the researcher). The potential bias problems with non-anonymous data, as noted by Cook and Campbell (1979), is that respondents may have either reported what they perceived the researchers wanted to see, or reported only that information that positively reflected their own knowledge, beliefs, abilities, or opinions. Further, the data are self-report, possibly subjecting the results to error based on inability of the human brain to recall accurately past events or behaviors, although respondents are in the best position to relate information concerning themselves to others (Schacter, 1999).

Another limitation is the data administration methodology which potentially introduces methods effects bias (Dooley, 2001:91). As noted in Chapter 3, the JIS survey administration methodology varied from base to base since base-appointed survey control monitors were given discretion as to how to administer the survey to their base's population of interest (AFOMS/OMY, 2002a). It is conceivable that a base's respondents may have reacted and answered differently based on their respective base's survey process, time allotted to complete the survey, involvement of unit leadership, peers'

opinions of the JIS survey, self-perceptions of JIS survey intent, etc. Further, the list of 31 predetermined separation/reenlistment factors were presented to respondents without explanation of what particular terms represented; hence, terms may have been interpreted differently by different survey takers. For example, the term “military lifestyle” is abstract and could have a unique meaning to each survey respondent based on his or her perception of what constitutes a military lifestyle—referencing Appendix F, this assumption may be supported by the fact that military lifestyle ranked 3rd of 31 factors as a separation factor and 4th of 31 factors as a reenlistment factor. Similarly, the term “pay and allowances,” as discussed earlier, lacks a concrete reference point, i.e., compared to what or whom?

Another possible limitation is that the archival data set used for this effort, provided by the AF, did not include reliability and validity information. Since data are not available on the construct validity of measures used within the JIS survey instrument, it is possible that the instrument suffers from method effects (Dooley, 2001; Fiske, 1987).

The results of this study are not generalizable outside of the AF IS population, but may hold comparative value against studies of other AF populations, particularly if the study is based on JIS survey data. Further, no claims of causality can be made or implied based on the results since the data analyses relied upon the use of contingency tables (McClave et al., 2001).

### **Future Research**

A primary survey of the population of interest using existing and validated measurement scales was prohibited for this effort due the perception by AF officials of



too many surveys of the AF IS community in the recent past. Hence, future research should focus on studying the model presented through a direct survey of the enlisted AF IS population using existing, validated measurement scales. It would be of interest to compare the results to similar studies of other government IS workers and to civilian IS workers. Further, future efforts could study a different AF population of interest, perhaps another critically-manned career field or even a non-critically manned career field, to gauge the effects of work exhaustion, perceived cohesion, and interrole conflict in comparison to levels found in the AF IS population. Another useful study would be a longitudinal effort with multiple evaluation points to determine change over time. Finally, a study of workers recently separated from the service would prove valuable in determining reasons why enlisted personnel follow through with a quit intention and whether any factors in their post-service life induce regret of their quit decision.

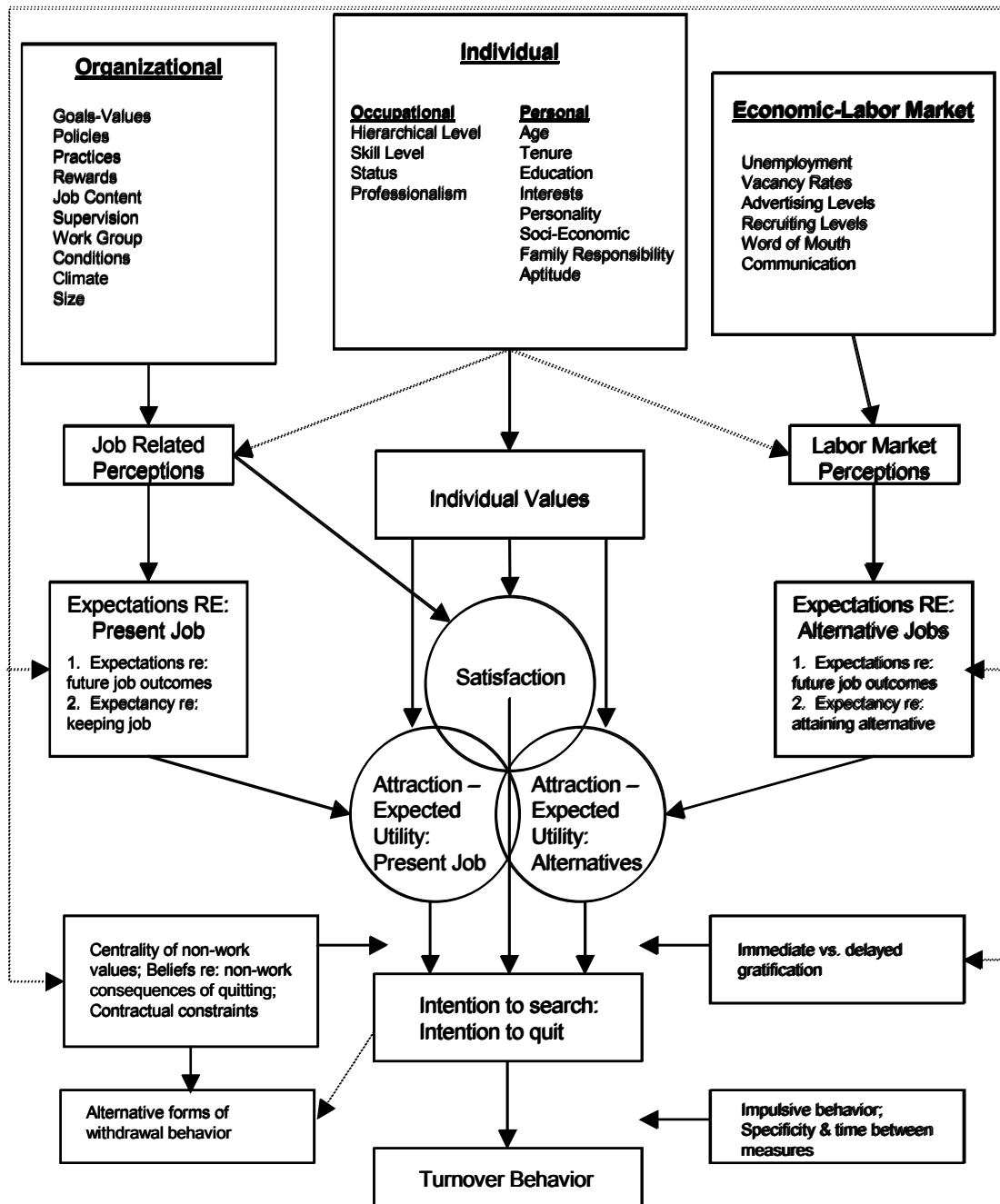
## **Conclusion**

Results from this study suggest that work exhaustion, perceived cohesion, and interrole conflict only moderately affect the job satisfaction-to-turnover intention relationship among enlisted AF IS workers. Contingency table analysis exhibited a pattern in all three hypothesized constructs showing that workers who were high in work exhaustion, high in interrole conflict, or low in perceived cohesion were more likely to be dissatisfied with their jobs, and workers who were low in work exhaustion, low in interrole conflict, or high in perceived cohesion were likely to be satisfied with their jobs.

Finally, results from this study suggest that work exhaustion, interrole conflict, and perceived cohesion may not be an adequate predictor of job satisfaction or turnover

intention for this population, although further studies are needed based on reliable measurement instruments. Hence, further research is needed to determine why AF IS workers are separating at a rate higher than the general AF population.

## Appendix A: Mobley et al's Employee Turnover Model



## Appendix B: Air Force Job Inventory Survey Process

The overview presented below provides specific information on the nature of the Air Force's Job Inventory Survey (JIS) process. Following the overview are a series of clarifications to aid in understanding the process.

# OCCUPATIONAL SURVEY PROCESS

Current as of 11 Feb 02

The [Occupational Analysis Flight \(OMY\)](#) is the office of primary responsibility (OPR) for management of the Air Force Occupational Analysis Program. OMY Analysts collect data about Air Force jobs through the use of occupational surveys. The information gathered from this program is used by agencies throughout the Air Force for updating and improving personnel classification, utilization, testing, and training. This important Air Force program is directed and governed by [Air Force Instruction \(AFI\) 36-2623, Occupational Analysis](#) and [AETCI 36-2601, Occupational Analysis Program](#). The occupational survey process consists of **seven** distinct phases:

**Phase I: Initiation of Survey.** It is normal to initiate an occupational survey of enlisted specialties three to five years from the date of their last survey. Exceptions are those specialties for which there are no Specialty Knowledge Tests (SKTs); such specialties will be considered for survey by special request only. In addition, there may be occasions where a survey may be requested earlier than the three-to-five year cycle. This may occur when a career field undergoes a conversion or a change in equipment or systems.

**Phase II: Job Inventory Development.** Once a request for an occupational survey has been approved, the first step is to develop a comprehensive listing of tasks which are performed in the specialty. Occupational Analysts in the Inventory Development Section (OMYV) interview course instructors and training management personnel at the Technical Training School for the career ladder and subject-matter experts (SMEs) at operational bases. From these interviews, OMYV Analysts compile a comprehensive listing of all significant tasks that may be performed by career ladder incumbents. This task listing, along with pertinent background information, is then published as a USAF Job Inventory.

**Phase III: Survey Administration.** The Occupational Survey Distribution Center (OMYXI) mails the USAF Job Inventories to Base Education Offices worldwide for administration to Air Force members in the career ladder being surveyed. The number of members who will receive a USAF Job Inventory is determined by the number of members in that particular career ladder. If there are less than 3,000 members, then all eligible members will receive an inventory disk or booklet to complete, with the exception of members in PCS or retirement status or those who have just arrived on station and have not had time to learn their new jobs (generally 6 weeks). When a career ladder has a population over 3,000, then a "random-stratified" sample is used. This type of sample usually includes 20% to 60% of members within the career ladder. A "random-stratified" sample ensures proportional representation of the total career ladder population, especially in terms of MAJCOM and paygrade. When civilians are being surveyed,

standardized procedures for ordering Atlas population summaries of Paygrade groups and Occupational Series must be followed. Special handling of the civilian job inventories for union coordination as well as specific mailing procedures must be comprehensively discussed at the project initiation.

**Phase IV: Data Processing and Quality Control. Disk surveys:** When USAF Job Inventory disk surveys are returned to OMYXI, the disks undergo a quality control (QC) review process to eliminate disks which have been improperly completed. If a respondent has removed the disk from the computer before the data have been compiled or exited the program and not finished the survey, there will be insufficient data or no data to analyze. These disks are eliminated from the study.

**Booklet surveys:** Similarly, when Job Inventory booklets are returned to OMYXI, the booklets undergo a QC review process to correct or eliminate booklets which have been improperly completed. Each booklet is reviewed for accuracy and completeness. Assigned individuals inspect each booklet to see that it was completed according to instructions. For example, no one should have gone through the booklet and checked all tasks, indicating that he or she presently performs all the tasks. Obviously, no one can perform all of the tasks in a career ladder in his or her present job. In such cases, the booklet is set aside and not used as a data source. In other instances, some data may seem incorrect. For example, a member identified himself or herself as a Master Sergeant (7-skill level) in the Background Section but later marked his or her skill level as a "3". In this case, the job incumbent will be called, when possible, to verify the information or to obtain corrected information. This careful QC of the returned booklets ensures that the data received are valid.

Once booklets or disks (depending on the media used for the study) are received and quality controlled, data processing personnel use an optical scanner (for booklets) or a desktop computer (for disks) to input task responses and background data from the returned inventories into the computer. Computer programming personnel then apply the Comprehensive Occupational Data Analysis Program (CODAP) to retrieve job descriptions and other related products for use in data analysis.

**Phase V: Data Analysis.** The Airman Analysis Section (OMYO) Occupational Analysts spend considerable time analyzing the data and reporting significant trends and implications. During this phase, the Analyst: identifies the work structure of incumbents within the career ladder; reviews career ladder documents, such as [AFMAN 36-2108, Airman Classification](#) [sic; should be *Enlisted Classification*], and STS, looking at utilization patterns for first-enlistment members and skill-level groups, MAJCOM groups, and CONUS/overseas groups; examines job satisfaction indicators within the career ladder; and reviews the accuracy and currency of formal Technical Training School training programs (primarily 3ABR courses). During the analysis phase, the POI/STS/CTS Task Matching is coordinated and accomplished with the appropriate Technical Training School.

**Phase VI: Publication of Occupational Survey Report (OSR) Results.** The next step in the occupational survey process is the publication of the analysis results in a format meaningful to the various users. This is usually done in the form of an OSR. Four basic types of reports and associated products are rendered by OMYO Analysts upon completion of an occupational survey. These are:

- OSR Narrative Report
- Analysis Extract
- Training Extract
- Specialty Knowledge Test (SKT) Extract

The **OSR Narrative Report** highlights major findings and implication of the data analysis. It is used by career ladder managers and SMEs to gain an insight into the overall condition of the career ladder. It provides a condensed clarification of the numerous data collected and states any implications affecting the career ladder.

The **Analysis Extract**, a compilation of all the data reported on a career ladder, is the primary source of information which supports the assertions made in the OSR Narrative Report. It is also a source document that furnishes complete information about subjects highlighted in the OSR. The **Analysis Extract** is divided into four major segments:

- Duty AFSC (DAFSC)/CONUS/Overseas Information
- Total Active Federal Military Service (TAFMS) Information
- MAJCOM Information
- Specialty Job Information

The **Training Extract** contains a series of computer printouts tailored for the training community. By using the data contained in this Extract along with criteria provided in [AETCI 36-2601, Occupational Analysis Program](#), training personnel can objectively determine training requirements for their particular career ladder. Various printouts display data in job inventory order, STS order, and POI order. Data groups displayed include both DAFSC and TAFMS groups as well as MAJCOM groups. In addition, tasks are presented in descending order of both training emphasis (TE) and computed Automated Training Indicator (ATI) value. When equipment lists are included in USAF Job Inventory disks or booklets, a printout will also be included in the Training Extract showing the responses of career ladder incumbents to the various background questions in the USAF Job Inventory.

The **Specialty Knowledge Test (SKT) Extract** is provided to the Test Development Flight (OMD) for use in constructing promotion tests under the Weighted Airman Promotion System (WAPS) program. It displays the job structure of the career ladder and presents data in form of an E-5 job description by percent members performing (PMP) order; E-6 and E-7 job description by PMP order; STS order; and when appropriate, it includes information on equipment used or maintained by career ladder incumbents.

**Phase VII: Interaction with Data Users.** The final step in the occupational survey process is perhaps the most critical and involves working with the User to apply the data collected to their particular situation. This involves either: a TDY trip to the Technical Training School and briefing the results of the OSR to training managers and curriculum developers; or attending a Utilization and Training Workshop (U&TW) and assisting attendees to apply the data in the revision of the [AFMAN 36-2108, Airman Classification](#) [sic], and the STS. During this step, the Analyst introduces the User to the data products and gives specific guidance on how to use the data printouts in making final decisions.

## **Clarifications of JIS Process**

The following excerpts from electronic messages are exact quotes taken from correspondences between the researcher and personnel in the Air Force Occupational Measurement Squadron (OMS) to clarify the precise nature of the survey process (OMS, 2002a, 2002b, & 2002c). OMS-provided clarifications are presented in boldface type by the researcher to provide context separation. Additionally, the researcher has inserted

bracketed clarifications where necessary to facilitate the understanding of military acronyms.

Clarification #1 (AFOMS/OMY, 2002a)

- I'm confused on the method of survey -- does "disk" below mean the responder took it from a physical floppy disk? If so, was the media under any sort of control/accountability and how did it get back to OMS? **The floppy disks were mailed to Survey Control Monitors (SCMs) at each base/installation. Each disk has a control number on it so that we know which disks are being sent to which base/installation. The box of disks contains a listing of eligible members to take the survey. (We get our mailing list from AFPC [Air Force Personnel Center].) Each SCM has his/her own method of distributing and tracking the disks. The SCMs mail us the surveys as they are completed and when the SCM has a stack for us rather than sending one or two at a time. At the 90-day point, the analyst closes the study IF the return rate is good (usually about 85% for AD [active duty] members) and surveys have been returned for "critical" bases (i.e., unique missions/aircraft/equipment).**

- The extract had sized sample responses (the "n") for the different subject areas, but do you have available:

-- Total number solicited by AFSC [Air Force Specialty Code, or specific career field, such as 3C0X1 for operator, 3C0X2 for programmer, and 3C2X1 for system controllers]

- **3C0X1 - surveyed 3,000 members**
- **3C2X1 - surveyed 1,910 members**

-- Survey: mandatory or optional? Standardized method of solicitation AF-wide? **Mandatory for military members, but we do not do anything if they don't complete a survey. It's hard for the SCM to ensure the surveys have actually been completed (can't hold it up to the light and check for certain files) so the SCMs are basically taking the respondent's word for it. Not all AF enlisted members are eligible to take the survey in a specific AFSC. The eligible listing is based on DAFSC [this is the enlisted member's duty AFSC, or the primary duty area in which the member is deemed to be currently serving]. They're not eligible (will not even appear on the listing) if they are: in a hospitalized status, in the process of PCSing [undergoing a permanent change of station which is a transfer to another base], within 6 weeks of retirement, or have been in their present job less than 6 weeks). We typically survey 100% of those eligible in a career field if the total population of members in that AFSC is less than 3,000. If over 3,000, we will survey a random stratified sample of a certain percentage...sometimes 50% or sometimes we'll cap it at 3,000 members (as we did with the 3C0X1 study). It depends on the AFSC being surveyed. We also include AFRC [Air Force Reserve Command] and/or ANG [Air National Guard] members if the career field managers want us to. Return rates are usually a lot lower for those members.**

- On 3C0X1 Special Extract , pgs 3 & 4, there is a "Total Sample N = 1,413" at the top under "Organization to which assigned." What does this mean? **The 1,413 total sample refers to the overall population in the total sample, but the 1,382 refers to the members who actually typed [emphasis present in original reply for the word "typed"] in the name of the organization to which they were assigned. (We ask them the organization to which assigned question twice...once for them to choose a type of organization from a listing of responses and**

once for them to type in the name of their organization. The question where they type in the org allows them to get a lot more specific...i.e., 12 CS [12th Communications Squadron] versus just "Comm[unication] Squadron".) I counted these organizations manually to give the CFM [enlisted career field manager] an overall picture of where her people were working. Only 98% of the total sample of 1,413 typed in an organization that I could count versus some people typing in something like "Air Force" which I did not count since I couldn't tell if they were assigned to a Comm Squadron or Test Squadron or whatever.

I ask because at the bottom, total response is 1,382; 98% of sample. Does this mean that there were 1413 respondents (of how many solicited?) and 98% gave a reply for "organization"?

- Were there any validation efforts that disqualified responses? E.g., could a respondent indicate assignment to an organization that he/she was not actually assigned to, or for that matter, a completely fictitious organization (e.g., "Starfleet")? **Our CODAP [explained in clarification #2 below] program goes through the data for each respondent and throws out respondents who selected fewer than five tasks or more than 95% of the total tasks, figuring that the person who selected fewer than five didn't care about the survey and the one who selected more than 95% also wasn't not paying attention and just wanted to finish the survey. Each analyst also goes through the data for every single respondent and throws out the data for people who responded in a pattern (i.e., "1" for every task or "1,2,3,4,5,etc". We do not throw out data for people who typed in an org that we think is erroneous. We do correct the DAFSC, PAFSC [enlisted member's primary AFSC], base, MAJCOM, name, SSN [social security number], TAFMS [total active federal military service, presented in number of years and months of active duty service], and a few other things based on records we get from AFPC [Air Force Personnel Center] that are used to validate such info for each person, but it's mainly to make sure the right people completed the surveys.**

- Here are the background questions and task lists for both AFSCs. In the background section, questions #7 and #8....you won't see this, b/c [because] these are just the word [Microsoft Word] documents from the disk survey, but when asked to rate these factors for their influence on their reenlistment/seperation decisions, they are asked to rate them on a scale of 1 to 3, 1 being "slightly influential" and 3 being "very influential". If they don't choose a factor, it shows up as a 0, which we take as "no influence". For the task lists, it works as a "two-pass" survey. The respondents are forced to (by the formatting on the disk survey) go through the entire list and choose the tasks they perform at their present job. Once they are done with the list, a new list shows up (made up of the tasks they selected) and the respondents are asked to rate, on a scale of 1 - 9, the relative amount of time they perform each task. I will also attach a .ppt [Microsoft Powerpoint] presentation that captures what the respondents actually view on the disk - which may clarify the instructions further. The .ppt is just an example, not the screens for the AFSCs you requested.

Clarification #2 (AFOMS/OMY, 2002b)

Thanks for the responses. If you don't mind, a few follow-up questions...

- How were SCMs at the bases selected? (E.g., are they base 3C FMs [functional managers], MPF [military personnel facility], comm sq CCs [communication squadron commanders], etc...) **They are usually enlisted members assigned to the Education and Training section within an MPF**



**[military personnel facility]. We do not pick them. It's an additional duty of the person filling the E&T [education and training] position in that section.**

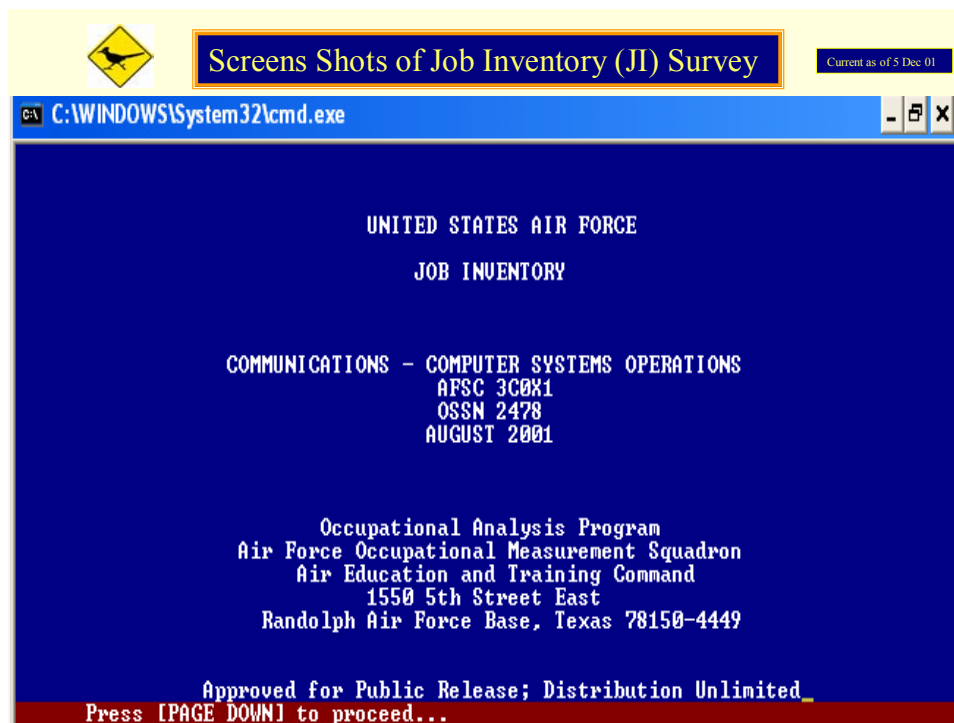
- **I understand that SCMs control their own process--however, do the potential respondents receive info (perhaps via email from OMS?) that the survey is "on the street" and considered mandatory for active duty personnel? Sometimes, the career field manager will publicize the survey administration through newsletters, e-mail, etc, and the word will filter down from the MAJCOM [Air Force Major Command, e.g., Air Combat Command] Functional Managers. But for the most part, the only way the respondents know that a survey is being administered is when the SCM calls them to pick up the disk (or take the survey on a computer in the E&T section of the MPF). The first screen of the survey tells them that they survey is mandatory for military members, but we don't do anything to members who do not complete them.**
- **Did you have any exclusions due to SCM noncompliance to your instructions (perhaps failed to return the media)? If so, do you have numbers (e.g., how many of how many total SCMs, and resulting in a "loss" of x number of surveys) Our mailroom tracks the number of disks we receive back from the SCMs (via Excel spreadsheet), and the analysts are required to check the numbers at the 45-day survey administration point, the 60-day point, and the 90-day point. The analyst is required to contact the SCM if returns are low or nonexistent to see what the problem might be. In general, we get approximately 85% of the AD [active duty] member disks back (20% or so are usually blank though and of no use). The returns for the AFRC [Air Force Reserve Command] and ANG [Air National Guard] members are quite a bit lower due to these members only being in their units one weekend/month to complete their surveys. And it's hard for them to find time to complete the surveys because the vast majority of their unit training assembly (UTA) time is spent training. (I know this from personal experience.) If we administer the survey to AD, AFRC, and ANG members, we typically end up with a rate of about 60% for those surveys mailed versus those in the final sample. In order to get you the numbers, I'd have to look at each study individually since we don't track the returns/good surveys for the total AF population.**
- **3C0X1: capped at 3,000 due to large career field---how large? (The Big N for them...) There were 7,359 members assigned as of the time we mailed the disks.**
- **Do you throw out "parts" or "wholes" only when you must throw out a survey? E.g., was 1,413 the total sample return, meaning that 1,587 either did not do the survey, had their survey tossed out, or perhaps were not sent in by the SCM? This would make the response rate (from 3,000) 47.1%. The 1,587 members not included in the final sample either did not receive them from the SCM, filled out an inadequate number of tasks or perhaps nothing at all, filled out a pattern of responses (i.e., all 5s, all 9s, or 1 2 3 4 5 6 7 8 9, etc), etc. We**

throw those out completely. If you'll look at Table 1 in the 3C0X1 OSR, you'll see that the PERCENT OF MAILED IN SAMPLE is 47% as you also indicated.

- What is CODAP? An automated process? **Comprehensive Occupational Data Analysis Programs (CODAP)** [bold emphasis in original] - **A set of computer programs used to automate** [bold emphasis in original for word “automate”], **process, organize, and report occupational data. The CODAP system was originally developed by the Air Force Human Resources Laboratory (AFHRL) in the mid-1960s and is continually updated and enhanced as new applications and technology become available. It's basically the software package we use to compile our data, run products to analyze, crunch the numbers, etc. We have four CODAP programmers who run the products for the analysts.**

## Appendix C: Air Force Job Inventory Survey Questions

The following screen shots are from the 2001 survey of computer operators, AFSC 3C0X1. The surveys for computer programmers, AFSC 3C0X2, and system controllers, AFSC 3C2X1, are identical except for identification of job tasks, so only the computer operator survey will be presented.





## Screens Shots of Job Inventory (JI) Survey

```
C:\WINNT\System32\CMD.exe
```

```
INTRODUCTION
```

```
1. The Occupational Measurement Squadron is conducting an occupational
survey to determine what tasks you and other members of your specialty
perform in your jobs. Your assistance in completing this survey is very
important to you and the Air Force. Your answers and the answers of other
airmen completing this USAF Job Inventory will directly impact Air Force
decisions concerning:
```

```
  a. Specialty Knowledge Tests ($KT) used in the Weighted Airman
    Promotion System (WAPS)
  b. Career Development Courses (CDC) for upgrade training in your
    career field
  c. Specialty Training Standards (STS) and resident training courses
  d. Specialty descriptions for your career field
  e. Personnel utilization.
```

```
Press [PAGE DOWN] to proceed...
```



## Screens Shots of Job Inventory (JI) Survey

```
C:\WINDOWS\System32\cmd.exe
```

```
2. This USAF Job Inventory consists of three sections:
```

```
  a. A BIOGRAPHICAL SECTION for general information about yourself
  b. A BACKGROUND SECTION for information about your job
  c. A DUTY-TASK SECTION to identify and time rate the tasks you perform
    in your current job.
```

```
3. To qualify for this survey, YOU MUST HAVE:
```

```
  a. A duty AFSC of 3C031, 3C051, or 3C071
  b. Held your duty AFSC for at least 6 weeks
  c. Been working in your present job for at least 6 weeks.
```

```
If you do not meet these requirements, STOP. Use your "!" key to exit
this survey and return this survey disk to the Survey Control Monitor or
your supervisor.
```

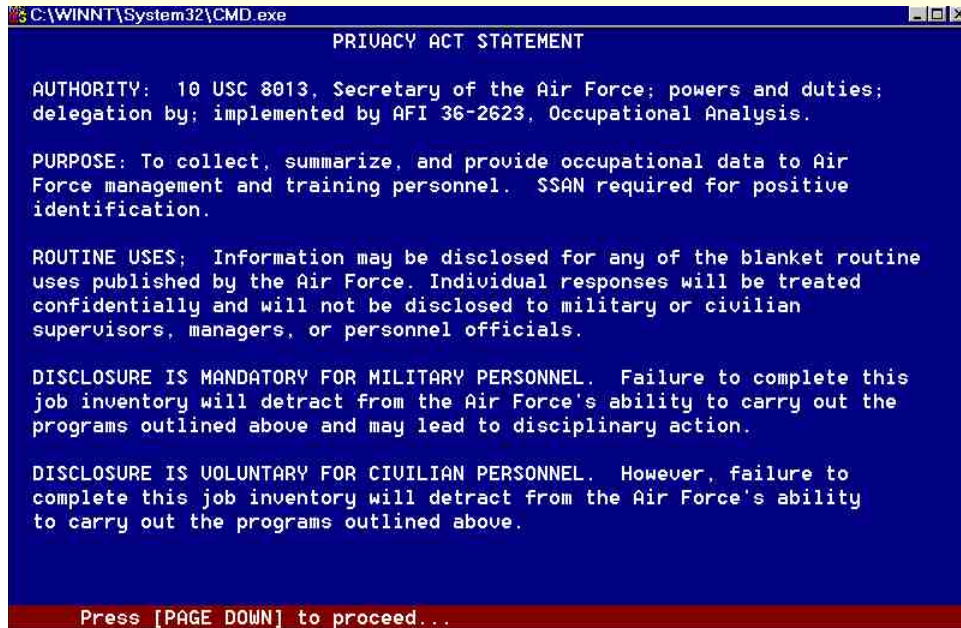
```
GENERAL INSTRUCTIONS
```

```
DO NOT TYPE IN APO NUMBER.
DO NOT TYPE IN CLASSIFIED INFORMATION.
```

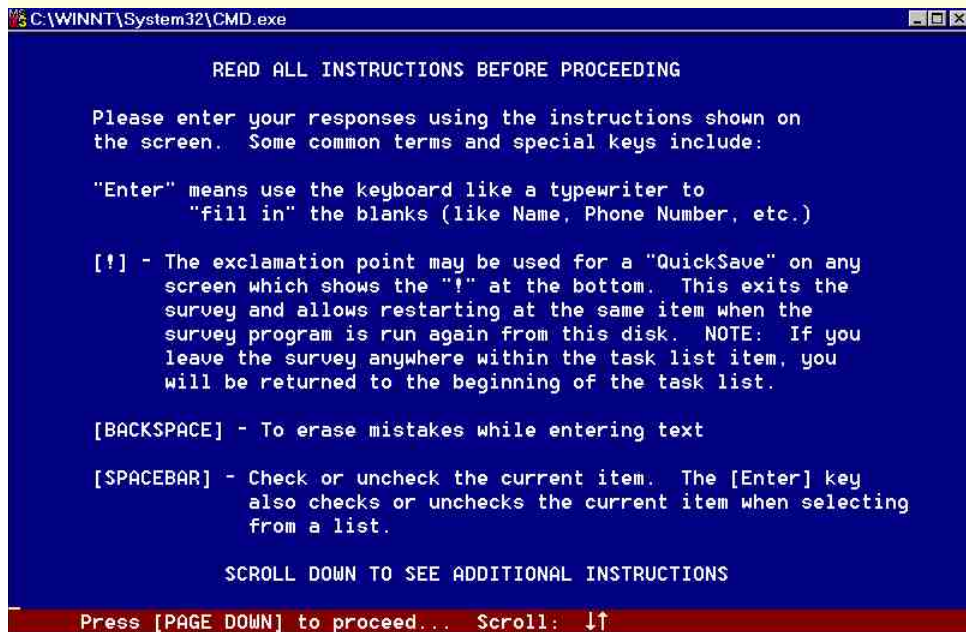
```
Press [PAGE DOWN] to proceed...
```



## Screens Shots of Job Inventory (JI) Survey



## Screens Shots of Job Inventory (JI) Survey





## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 6 of 111

Please enter your Last Name and First Initial, separated by one space.

Example: LASTNAME I

If your name is too long to fit in the available space, enter as much as possible.

Examples: LONGLASTNAM (can't fit entire last name, no room for initial)  
LONGERNAME (no room for initial after space)

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 7 of 111

Please indicate your Air Force component status.

A = Active Duty  
R = Air Force Reserve  
G = Air National Guard

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions





## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 8 of 111

Please enter your Social Security Account Number (SSAN)

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 9 of 111

Please indicate your sex

1 = Male  
2 = Female

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 10 of 111

Please indicate your grade level

- 1 = E-1
- 2 = E-2
- 3 = E-3
- 4 = E-4
- 5 = E-5
- 6 = E-6
- 7 = E-7
- 8 = E-8
- 9 = E-9

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 15 of 111

Enter your 7-digit Defense Switched Network (DSN) telephone number. If you don't know your installation DSN prefix or don't have DSN service, leave this item blank and enter your complete commercial phone number, including area code, on the next screen.

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions





## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 18 of 111

What is the number of people you directly supervise?

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 19 of 111

How long have you been at your present job?

Please indicate your answer in terms of Year(s) and Month(s)

Examples:

2 years and 10 months should be entered as 0210  
10 years and 2 months should be entered as 1002

Always fill in all four positions, including 0's as required

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 20 of 111

How long have you been in your career field?

Please indicate your answer in terms of Year(s) and Month(s)

Examples:

2 years and 10 months should be entered as 0210  
10 years and 2 months should be entered as 1002

Always fill in all four positions, including 0's as required

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 26 of 111

Indicate the number of years and months of  
Total Active Federal Military Service (TAFMS)?

Please indicate your answer in terms of Year(s) and Month(s)

Examples:

2 years and 10 months should be entered as 0210  
10 years and 2 months should be entered as 1002

Always fill in all four positions, including 0's as required

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 34 of 111

Please enter your Primary AFSC PREFIX-Only

If you don't have a prefix (such as a "T" or an "R"), leave this field blank. The next screen will ask for your AFSC plus suffix (if any).

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 35 of 111

Please enter your Primary AFSC with suffix

If you don't have a suffix (such as an "A" or a "B"), leave the last character position blank.

If your AFSC contains a zero, use the numeric "0" character, not the alphabetic "O".

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 36 of 111

Please enter your Duty AFSC PREFIX-Only

If you don't have a prefix (such as a "T" or an "R"), leave this field blank. The next screen will ask for your AFSC plus suffix (if any).

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 37 of 111

Please enter your Duty AFSC with suffix

If you don't have a suffix (such as an "A" or a "B"), leave the last character position blank.

If your AFSC contains a zero, use the numeric "0" character, not the alphabetic "O".

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 40 of 111

Please enter the name of your organization.

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 41 of 111

Please enter a descriptive title for your present job.

Provide a job title which indicates your particular job function within your specialty.

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

BASE TO WHICH ASSIGNED  
Read the list of bases and installations below. Indicate the base or installation to which you are assigned.

Located at Survey Segment 42 of 111

Item Number 1 of 151

- ☒ Allen C. Thompson Field MS
- ☐ Andersen AFB GU
- ☐ Andrews AFB MD
- ☐ Atlantic City Aprt NJ
- ☐ Aviano AB IT
- ☐ Bangor IAP ME
- ☐ Barksdale AFB LA
- ☐ Barnes Municipal Aprt MA
- ☐ Beale AFB CA
- ☐ Birmingham Aprt AL
- ☐ Boise Air Field ID
- ☐ Bradley IAP CT
- ☐ Buckley AFB CO

!-QuickSave ↓-Next ↑-Prev [F1]-Instructions SPACEBAR to Check/Erase



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

BASE TO WHICH ASSIGNED  
Read the list of bases and installations below. Indicate the base or installation to which you are assigned.

Located at Survey Segment 42 of 111

Item Number 151 of 151

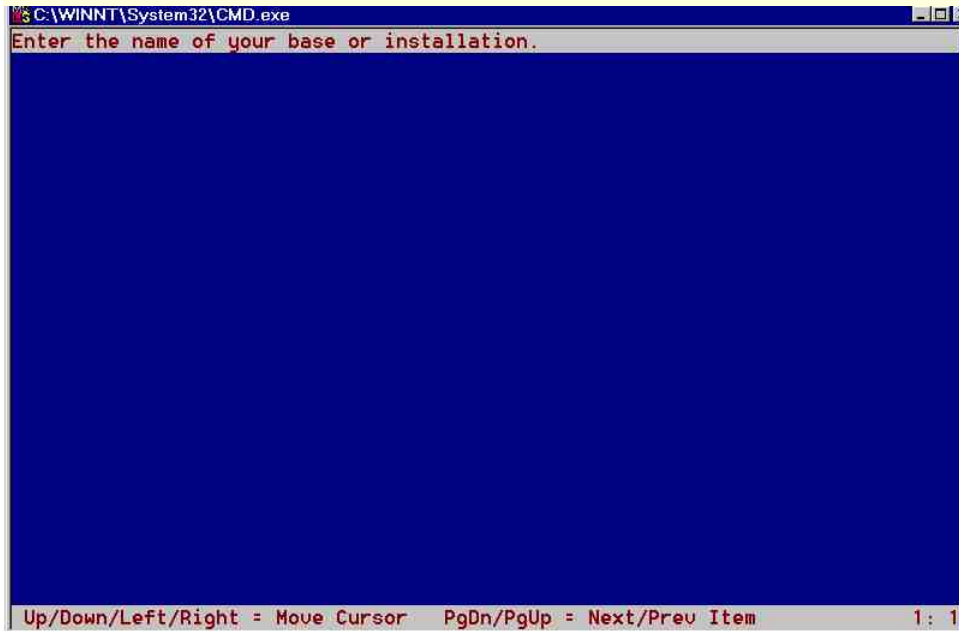
- ☐ Whiteman AFB MO
- ☐ Will Rogers World Aprt OK
- ☐ Willow Grove ARS PA
- ☐ Wright-Patterson AFB OH
- ☐ Yeager Aprt WU
- ☐ Yokota AB JA
- ☐ Youngstown/Warren Reg Aprt/ARS OH
- ☒ Other

!-QuickSave ↓-Next ↑-Prev [F1]-Instructions SPACEBAR to Check/Erase





## Screens Shots of Job Inventory (JI) Survey

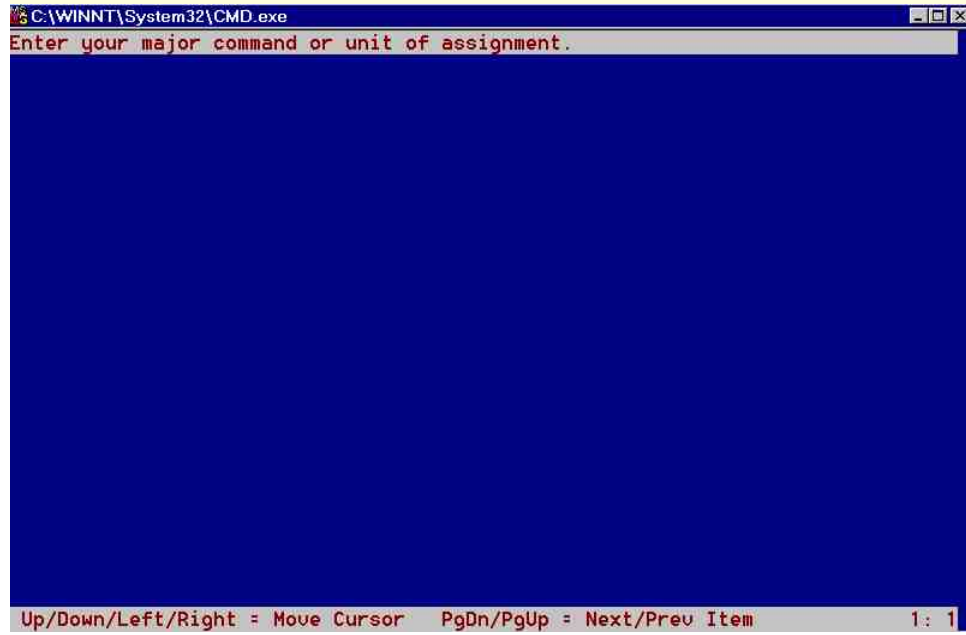


## Screens Shots of Job Inventory (JI) Survey

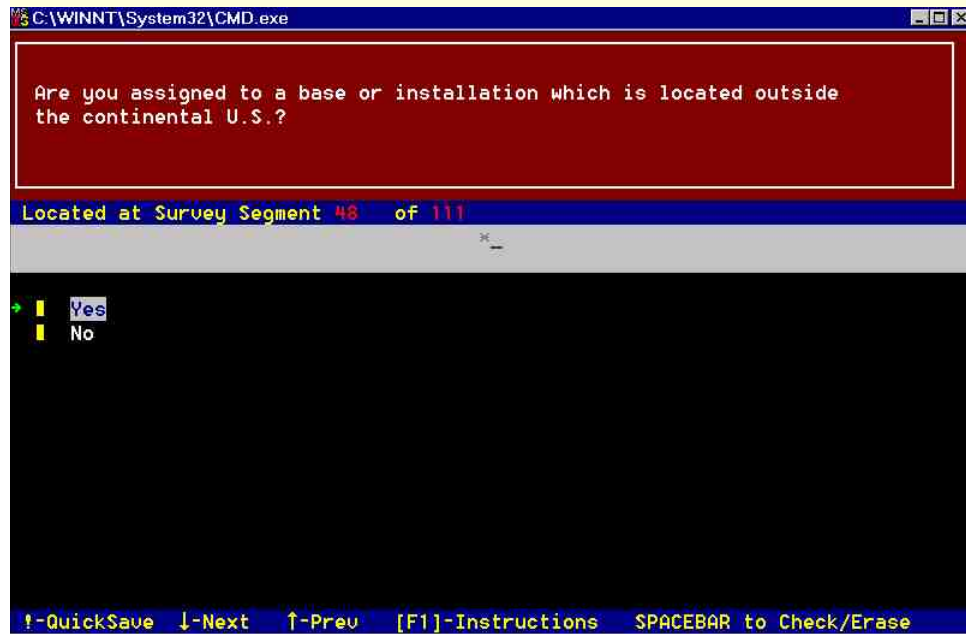




## Screens Shots of Job Inventory (JI) Survey



## Screens Shots of Job Inventory (JI) Survey







## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 49 of 111

How do you find your job? Choose only one.

1. Extremely Dull
2. Very Dull
3. Fairly Dull
4. So-So
5. Fairly Interesting
6. Very Interesting
7. Extremely Interesting

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 50 of 111

How does your job utilize your talents? Choose only one.

1. Not At All
2. Very Little
3. Fairly Well
4. Quite Well
5. Very Well
6. Excellently
7. Perfectly

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 51 of 111

How does your job utilize your training? Choose only one.

1. Not At All
2. Very Little
3. Fairly Well
4. Quite Well
5. Very Well
6. Excellently
7. Perfectly

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 52 of 111

How satisfied are you with the sense of accomplishment you gain from your work? Choose only one.

1. Extremely Dissatisfied
2. Very Dissatisfied
3. Slightly Dissatisfied
4. Neither Satisfied Nor Dissatisfied
5. Slightly Satisfied
6. Very Satisfied
7. Extremely Satisfied

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 53 of 111

Do you plan to reenlist at the end of your current enlistment? Choose only one.

1. Will Retire (I will have completed at least 20 years' service)
2. Definitely Will Not Reenlist
3. Probably Will Not Reenlist
4. Probably Will Reenlist
5. Definitely Will Reenlist

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Examine each statement and determine whether it influenced your decision. Press the SPACEBAR to CHECK or ERASE items which have influenced you.

After you have selected all of the appropriate items, you will be asked to rate their relative importance on the next screen.

Located at Survey Segment 56 of 111

FACTORS INFLUENCING DECISION TO SEPARATE

Item Number 1 of 31

- Military lifestyle
- Pay and allowances
- Bonus or special pay
- Retirement benefits
- Military related education and training opportunities
- Off-duty education and training opportunities
- Medical or dental care for AD member
- Medical care or dental care for family members
- Base housing
- Base services
- Childcare needs
- Spouse's career
- Civilian job opportunities

! -QuickSave ↓ -Next ↑ -Prev [F1] -Instructions SPACEBAR to Check/Erase



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

1 - Slight influence on decision to separate  
2 - Moderate influence on decision to separate  
3 - Strong influence on decision to separate

Located at Survey Segment 57 of 111

FACTORS INFLUENCING DECISION TO SEPARATE

→ [ ] Military related education and training opportunities  
[ ] Base services  
[ ] Job security  
[ ] Leadership at unit level

Up/Down/Left/Right = Move Cursor PgDn/PgUp = Next/Prev Item 1: 1



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Enter other factors influencing your separation and rate them.

Up/Down/Left/Right = Move Cursor PgDn/PgUp = Next/Prev Item 1: 1



## Screens Shots of Job Inventory (JI) Survey

```
C:\WINNT\System32\CMD.exe
Examine each statement and determine whether it influenced your decision.
Press the SPACEBAR to CHECK or ERASE items which have influenced you.

After you have selected all of the appropriate items, you will be
asked to rate their relative importance on the next screen.

Located at Survey Segment 60 of 111
FACTORS INFLUENCING DECISION TO REENLIST

Item Number 1 of 31
+ [ ] Military lifestyle
  [ ] Pay and allowances
  [ ] Bonus or special pay
  [ ] Retirement benefits
  [ ] Military related education and training opportunities
  [ ] Off-duty education and training opportunities
  [ ] Medical or dental care for AD member
  [ ] Medical care or dental care for family members
  [ ] Base housing
  [ ] Base services
  [ ] Childcare needs
  [ ] Spouse's career
  [ ] Civilian job opportunities
!-QuickSave ↓-Next ↑-Prev [F1]-Instructions SPACEBAR to Check/Erase
```



## Screens Shots of Job Inventory (JI) Survey

```
C:\WINNT\System32\CMD.exe

1 - Slight influence on decision to reenlist
2 - Moderate influence on decision to reenlist
3 - Strong influence on decision to reenlist

Located at Survey Segment 61 of 111
FACTORS INFLUENCING DECISION TO REENLIST

+ [ ] Base housing
  [ ] Number/duration of TDYs or deployments
  [ ] Promotion opportunities
  [ ] Unit manning
  [ ] Leadership of immediate supervisor

! - QuickSave ↓ -Preview ↑ -Review [F1]-Instructions
```



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Enter other factors influencing your reenlistment and rate them.

Up/Down/Left/Right = Move Cursor PgDn/PgUp = Next/Prev Item 1: 1



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 63 of 111

Indicate the number of deployments you completed in support of contingencies or exercises during the past 12 months. Choose only one.

1. None, I did not complete any deployments in support of contingencies or exercises during the past 12 months
2. 1 deployment
3. 2 deployments
4. 3 deployments
5. 4 deployments
6. 5 deployments
7. 6 deployments or more

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions





## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Type in the requested information. Then press the [ENTER] key.

Located at Survey Segment 65 of 111

Indicate the number of days during the past 12 months you have spent on temporary duty (TDY) in support of contingencies or exercises. Choose only one.

1. 30 days or less
2. 31 - 59 days
3. 60 - 89 days
4. 90 - 119 days
5. 120 - 149 days
6. 150 - 179 days
7. 180 days or more

! - QuickSave ↓ -Preview ↑ -Review [F1] -Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

Indicate the organizational level of your present assignment. Choose only one.

Optional BQ - include only if requested by AFCFM or Analyst  
Shown for example purposes only!

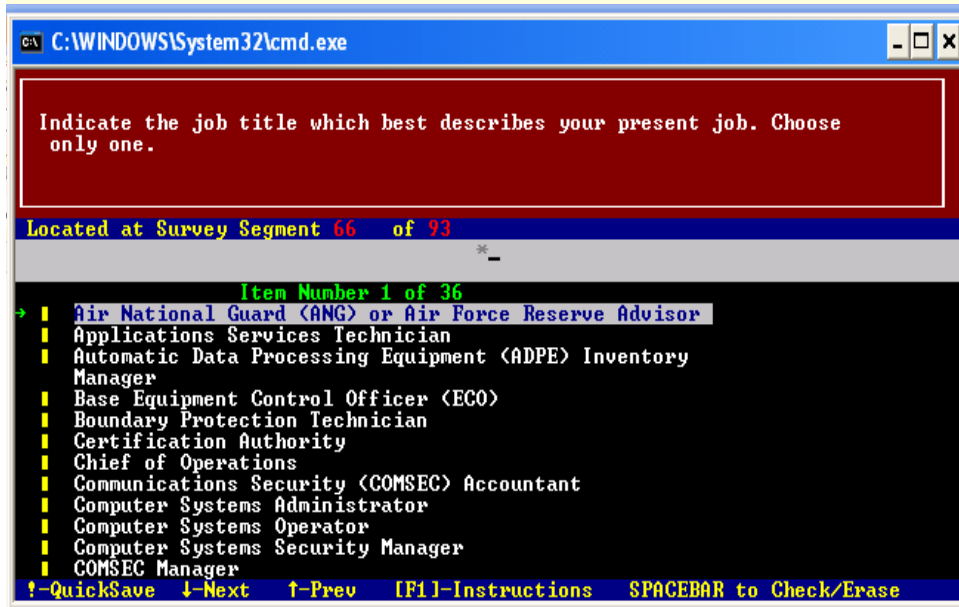
Located at Survey Segment 66 of 111

- HQ USAF
- Unified Command
- Major Command
- Joint Command
- Field Operating Agency
- Numbered Air Force
- Wing
- Group
- Squadron
- Detachment
- Operating Location
- Flight
- Element

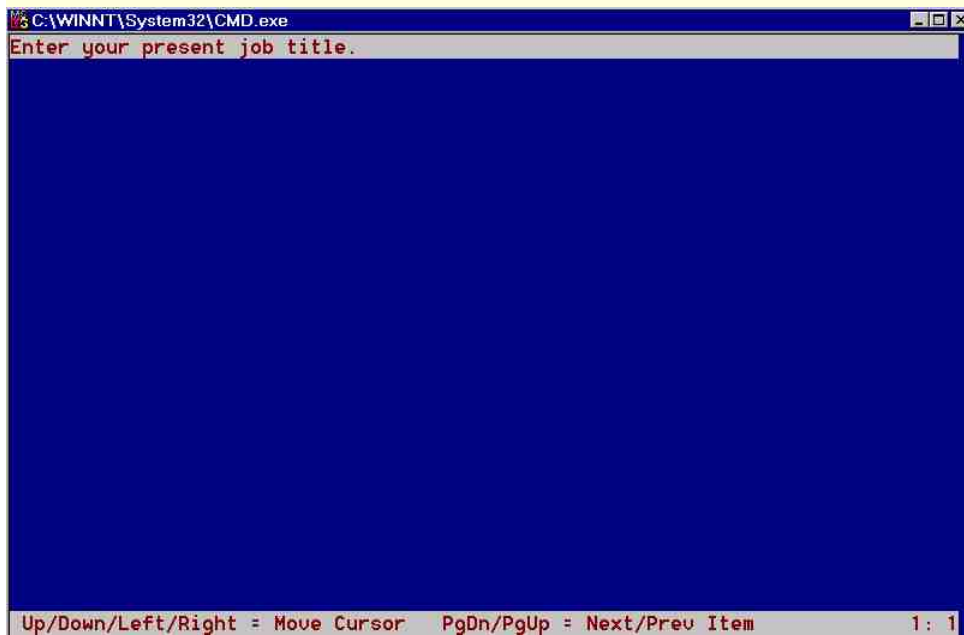
! -QuickSave ↓ -Next ↑ -Prev [F1] -Instructions SPACEBAR to Check/Erase



## Screens Shots of Job Inventory (JI) Survey



## Screens Shots of Job Inventory (JI) Survey







## Screens Shots of Job Inventory (JI) Survey



At this point in the survey, you would see *other* additional background questions requested by the AFCFM or technical school.

When reviewing these BQs be sure to read the wording of ***Other*** screens where write-in comments can be entered. Wording should be relevant to respective BQ stems (shortened, meaningful versions).

Also ensure that branching occurs as indicated on Final Bond version.



## Screens Shots of Job Inventory (JI) Survey

```
C:\WINNT\System32\CMD.exe

INSTRUCTIONS FOR DUTY-TASK SECTION

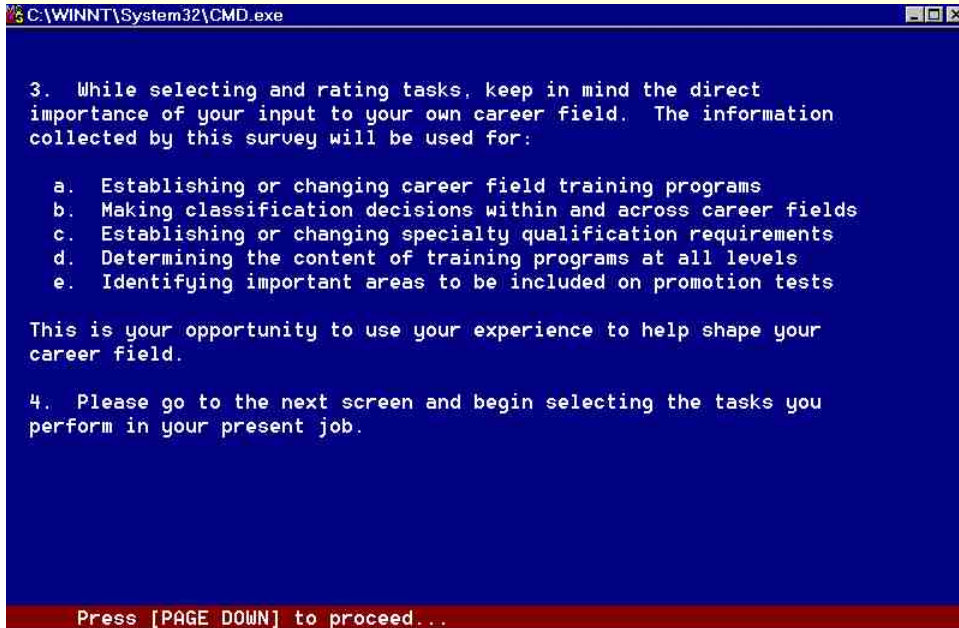
1. As you read each task in the Duty-Task section, select (using the
"spacebar" key) each task you perform in your present job. DO NOT SELECT
TASKS YOU HAVE PERFORMED IN PREVIOUS JOBS, OR TASKS YOU FEEL YOU ARE
QUALIFIED TO PERFORM. Do not confuse work you do yourself with work
you supervise. Select only those tasks you actually perform in your
present job.

2. If a task you perform is not listed anywhere in the entire list, add
it to the text entry screen which will be presented at the end of the
survey. This screen will be presented after you rate the importance of
items you are familiar with. DO NOT ADD TASKS THAT ARE CLASSIFIED.

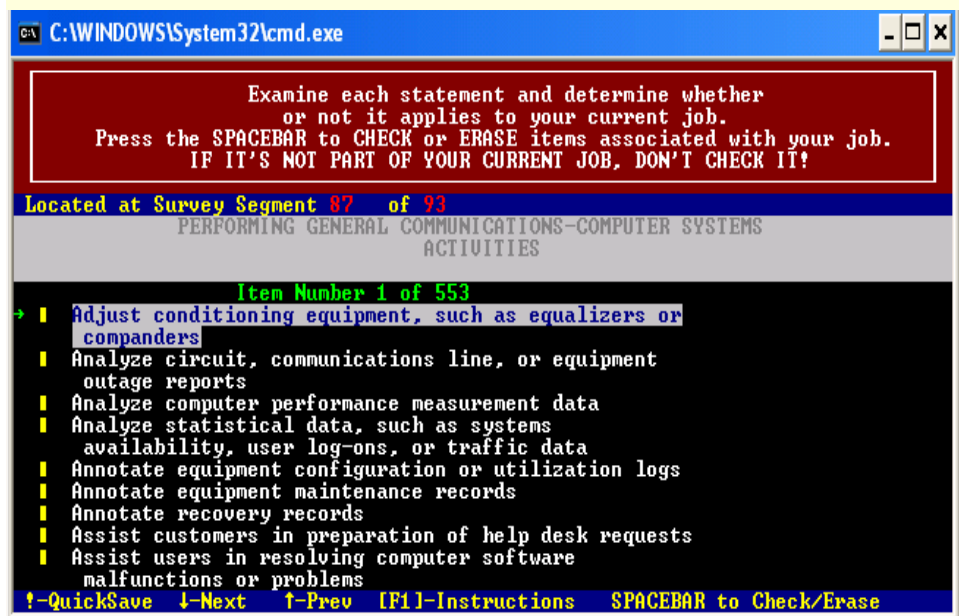
Press [PAGE DOWN] to proceed...
```



## Screens Shots of Job Inventory (JI) Survey



## Screens Shots of Job Inventory (JI) Survey





## Screens Shots of Job Inventory (JI) Survey

```
C:\WINNT\System32\CMD.exe

1. Have you checked each task you perform in your present job? Make
sure, before you continue with this procedure.

2. Now you are to rate the relative amount of time you spend performing
each task in your present job. Relative time spent means the total time
you spend doing the task compared with the time you spend on each of the
other tasks in your present job.

3. Use a rating of "1" if you spend "a very small amount" of time on a
task. Use a rating of "2" for "much below average" time, and so on, up
to a rating of "9" if you spend a "very large amount" of time on the task.

4. Only selected tasks will be presented on the following screens. If
you want to rate any other tasks, you will have to go back and select them.

5. Enter your rating, according to the 9-point scale, for each task
statement.

6. When you have completed all of your ratings, you will have completed
this USAF Job Inventory and you may turn it in to your Occupational Survey
Control Monitor.

7. Now, go to the next screen and begin rating the "Time Spent" on those
tasks you selected previously.
Press [PAGE DOWN] to proceed... Scroll: ↑↓
```



## Screens Shots of Job Inventory (JI) Survey

```
C:\WINDOWS\System32\cmd.exe

1 - Very Small Amount of Time Spent
2 - Much Below Average Time Spent
3 - Below Average Time Spent
4 - Slightly Below Average Time Spent
5 - About Average Time Spent
6 - Slightly Above Average Time Spent
7 - Above Average Time Spent
8 - Much Above Average Time Spent
9 - Very Large Amount of Time Spent

Rating Scale
For Relative
Time Spent

Located at Survey Segment 89 of 93
PERFORMING GENERAL COMMUNICATIONS-COMPUTER SYSTEMS
ACTIVITIES
Item Number 1 of 20
→ [ ] Annotate equipment configuration or utilization logs
[ ] Review automated or manual AF Forms 3215 (C4 Systems
Requirements Document)
[ ] Review computer output products

! - QuickSave ↓ -Preview ↑ -Review [F1]-Instructions
```



## Screens Shots of Job Inventory (JI) Survey

C:\WINNT\System32\CMD.exe

1 - Very Small Amount of Time Spent 2 - Much Below Average Time Spent 3 - Below Average Time Spent 4 - Slightly Below Average Time Spent 5 - About Average Time Spent 6 - Slightly Above Average Time Spent 7 - Above Average Time Spent 8 - Much Above Average Time Spent 9 - Very Large Amount of Time Spent	Rating Scale For Relative Time Spent
--	--

Located at Survey Segment 94 of 98

PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES

Item Number 7 of 7

- [3] Draft budget requirements
- [7] Inspect facilities
- [9] Write or indorse military enlisted performance reports (EPRs)

! - QuickSave   ↓ -Preview   ↑ -Review   [F1]-Instructions



## Screens Shots of Job Inventory (JI) Survey

C:\WINDOWS\System32\cmd.exe

Type in the requested information.   Then press the [ENTER] key.

Located at Survey Segment 92 of 93

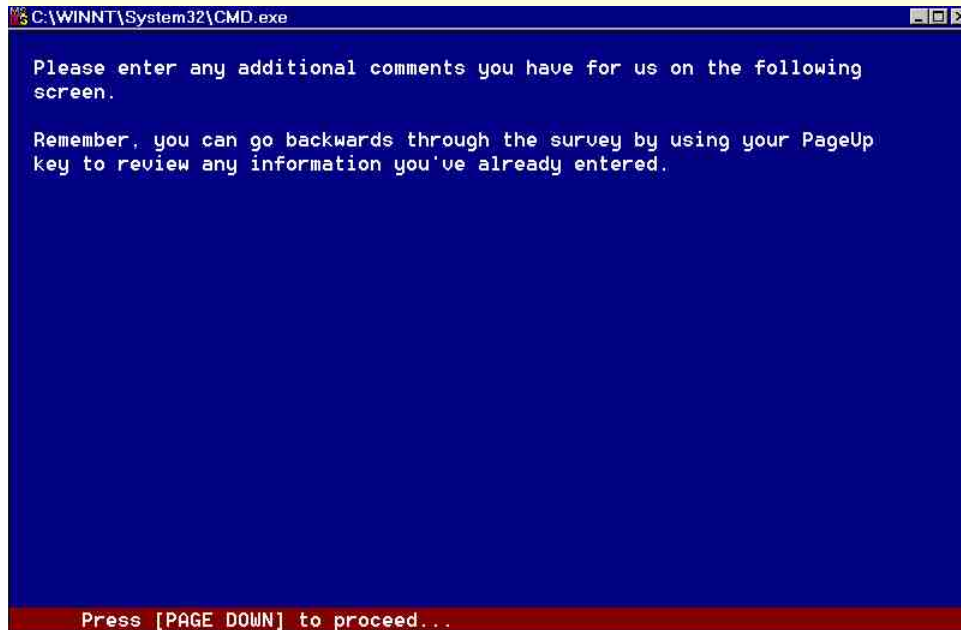
Do you prefer to complete surveys on a computer, like this disk-based survey, or in a booklet, like a paper-and-pencil survey?

- 1. Computer
- 2. Booklet
- 3. No preference

! - QuickSave   ↓ -Preview   ↑ -Review   [F1]-Instructions

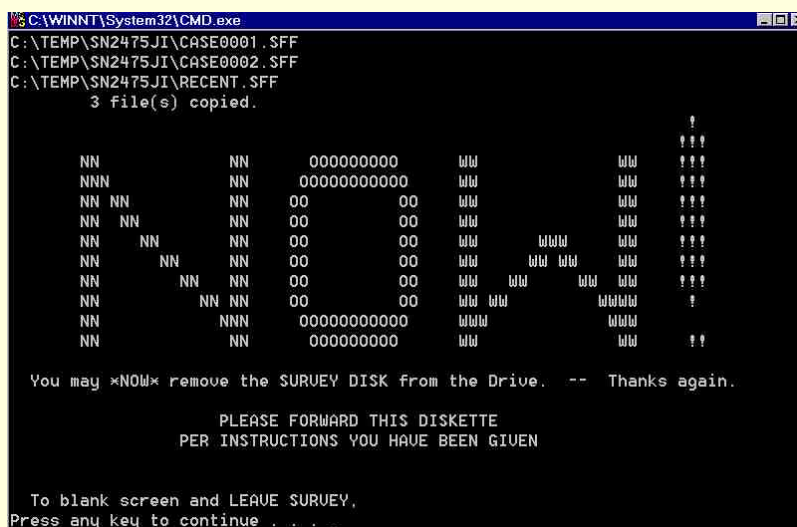


## Screens Shots of Job Inventory (JI) Survey



## Screens Shots of Job Inventory (JI) Survey

Current as of 5 Dec 01



You may now close this presentation window!



## Appendix D: Knowledge Requirements

Job Type	Summarized Knowledge Requirements
Operators	<ul style="list-style-type: none"> <li>• Capabilities, functions, and technical methods of system operation</li> <li>• Organization and functions of AF automated systems and elements</li> <li>• Communications-computer system flows</li> <li>• Operations and logic of electromechanical and electronic systems and their components</li> <li>• Techniques for solving system operations problems</li> <li>• System security procedures and programs to include information protection (AFM 36-2108:333)</li> </ul>
Programmers	<ul style="list-style-type: none"> <li>• System capabilities, limitations, and logic</li> <li>• Techniques and procedures of systems analysis and design</li> <li>• Related information processing devices and systems</li> <li>• Systems and technology and software methodologies</li> <li>• Methods of editing input and output data</li> <li>• Configuration management techniques</li> <li>• Security practices</li> <li>• Customer relations</li> <li>• Application of mathematical/analytical processes to solve system processing problems</li> <li>• Computer program editing and testing techniques (AFM 36-2108:336)</li> </ul>
Controllers	<ul style="list-style-type: none"> <li>• Operating principles and signal characteristics of electronic components and devices</li> <li>• Electrical modulation and multiplexing techniques, and imagery to electrical signal conversion</li> <li>• Operating principles of computers and peripherals</li> <li>• Digital circuit signal characteristics and encoding techniques</li> <li>• Computer-communication protocols and interface techniques</li> <li>• Operating principles of fiber optics, cable and radio transmission equipment, antennas, and transmission-media propagation theory</li> <li>• Operating principles of signal switching networks and local area networks (AFM 36-2108:342)</li> </ul>

## Appendix E: Construct Measurement Items

Construct: **Work Exhaustion (WE)**

Measurement Items: WE1 – unit manning  
WE2 – additional duties  
WE3 – work schedule  
WE4 – how does your job utilize your training  
WE5 – recognition of efforts  
WE6 – promotion opportunities  
WE7 – pay & allowances  
WE8 – bonus or special pay

Construct: **Interrole Conflict (IC)**

Measurement Items: IC1 – off-duty education & training  
IC2 – childcare needs  
IC3 – spouse's career  
IC4 – location of present assignment  
IC5 – number/duration of TDYs/deployments

Construct: **Perceived Cohesion (PC)**

Measurement Items: PC1 – *esprit de corps*/morale  
PC2 – number of PCS moves  
PC3 – assigned to base/installation outside of CONUS  
PC4 – military related education & training  
PC5 – training or experience of unit personnel  
PC6 – unit readiness  
PC7 – unit resources  
PC8 – leadership of immediate supervisor  
PC9 – leadership at unit level  
PC10 – senior Air Force leadership

## **Appendix F: Separation/Retention Factor Frequencies and Rank Orders**

When responding to the JIS survey, depending upon whether the individual indicated an intention to separate (definitely will separate, or probably will separate) or an intention to reenlist (definitely will reenlist, or probably will reenlist), the respondent is presented with the appropriate separation or retention factors list. Each list contains 31 items; the respondent is allowed to select as many (or none) of the factors as he or she wishes. For each item the respondent selected, they are then asked to provide the level of influence of that particular factor on their decision. These levels are as follows: 1 = slight influence; 2 = moderate influence; 3 = strong influence. If a respondent failed to provide a weight, the factor score was set to zero. The factors are presented below showing a side-by-side comparison of all 31 separation factors (SF) and retention factors (RF), and by rank order.



FACTOR (listed by JIS Survey order)	Separation Factor Influence					Reenlistment Factor Influence				
	Slight	Mod	Strong	Total	% *	Slight	Mod	Strong	Total	% *
Military lifestyle	153	157	238	548	21.8%	136	317	301	754	30.0%
Pay & allowances	71	187	479	737	29.4%	88	242	243	573	22.8%
Bonus or special pay	55	74	105	234	9.3%	69	184	439	692	27.6%
Retirement benefits	40	65	79	184	7.3%	70	221	671	962	38.3%
Military related education/training	70	81	92	243	9.7%	92	368	340	800	31.9%
Off-duty education & training	51	61	100	212	8.4%	81	299	353	733	29.2%
Medical/dental care for member	55	66	64	185	7.4%	73	265	350	688	27.4%
Medical or dental care for family	33	49	94	176	7.0%	54	196	392	642	25.6%
Base housing	53	63	69	185	7.4%	70	139	82	291	11.6%
Base services	52	49	33	134	5.3%	89	150	54	293	11.7%
Childcare needs	13	25	40	78	3.1%	20	44	51	115	4.6%
Spouse's career	20	52	65	137	5.5%	25	42	78	145	5.8%
Civilian job opportunities	50	123	441	614	24.5%	47	82	174	303	12.1%
Equal employment opportunity	9	13	25	47	1.9%	17	41	46	104	4.1%
Number of PCS moves	30	65	91	186	7.4%	44	84	68	196	7.8%
Location of present assignment	73	103	171	347	13.8%	60	147	213	420	16.7%
#/duration of TDYs/deployments	40	72	130	242	9.6%	39	76	103	218	8.7%
Work schedule	50	62	111	223	8.9%	91	186	105	382	15.2%
Additional duties	72	108	97	277	11.0%	35	40	28	103	4.1%
Job security	31	22	31	84	3.3%	73	278	506	857	34.1%
Enlisted evaluation system	28	65	73	166	6.6%	10	31	27	68	2.7%
Promotion opportunities	47	62	117	226	9.0%	41	152	164	357	14.2%
Training/experience unit personnel	53	83	112	248	9.9%	39	118	106	263	10.5%
Unit manning	53	83	105	241	9.6%	20	48	30	98	3.9%
Unit resources	59	73	75	207	8.2%	24	34	28	86	3.4%
Unit readiness	20	22	27	69	2.7%	9	19	19	47	1.9%
Recognition of efforts	61	125	201	387	15.4%	59	113	112	284	11.3%
Esprit de corps/morale	57	110	175	342	13.6%	51	141	176	368	14.7%
Leadership immediate supervisor	28	61	111	200	8.0%	35	111	138	284	11.3%
Leadership unit level	43	95	157	295	11.8%	29	85	101	215	8.6%
Senior AF Leadership	41	58	115	214	8.5%	18	50	62	130	5.2%
* Note: % = (total ÷ 2510)	TOT: 7,668					TOT: 11,471				
Remaining responses = 0, no influence	AVG: 247.35 9.9%					AVG: 370.03 14.7%				

The separation factor rank-ordered list appears on the next page.

RANK	SEPARATION FACTOR INFLUENCE	Factor	Slight	Moderate	Strong	Total	% *
1)	Pay & allowances	WE7	71	187	479	737	29.4%
2)	Civilian job opportunities		50	123	441	614	24.5%
3)	Military lifestyle		153	157	238	548	21.8%
4)	Recognition of efforts	WE5	61	125	201	387	15.4%
5)	Location of present assignment	IC4	73	103	171	347	13.8%
6)	<i>Esprit de corps</i> /morale	PC1	57	110	175	342	13.6%
7)	Leadership at unit level	PC9	43	95	157	295	11.8%
8)	Additional duties	WE2	72	108	97	277	11.0%
9)	Training/experience of unit personnel	PC5	53	83	112	248	9.9%
10)	Military related education/training	PC4	70	81	92	243	9.7%
11)	Number/duration of TDYs or deployments	IC5	40	72	130	242	9.6%
12)	Unit manning	WE1	53	83	105	241	9.6%
13)	Bonus or special pay	WE8	55	74	105	234	9.3%
14)	Promotion opportunities	WE6	47	62	117	226	9.0%
15)	Work schedule	WE3	50	62	111	223	8.9%
16)	Senior AF Leadership	PC10	41	58	115	214	8.5%
17)	Off-duty education & training	IC1	51	61	100	212	8.4%
18)	Unit resources	PC7	59	73	75	207	8.2%
19)	Leadership of immediate supervisor	PC8	28	61	111	200	8.0%
20)	Number of PCS moves	PC2	30	65	91	186	7.4%
21)	Medical or dental care for AD member		55	66	64	185	7.4%
22)	Base housing		53	63	69	185	7.4%
23)	Retirement benefits		40	65	79	184	7.3%
24)	Medical or dental care for family		33	49	94	176	7.0%
25)	Enlisted evaluation system		28	65	73	166	6.6%
26)	Spouse's career	IC3	20	52	65	137	5.5%
27)	Base services		52	49	33	134	5.3%
28)	Job security		31	22	31	84	3.3%
29)	Childcare needs	IC2	13	25	40	78	3.1%
30)	Unit readiness	PC6	20	22	27	69	2.7%
31)	Equal employment opportunity		9	13	25	47	1.9%

\* Note: % = (total ÷ 2510)

The reenlistment factor rank-ordered list appears on the next page.

RANK	REENLISTMENT FACTOR INFLUENCE	Factor	Slight	Moderate	Strong	Total	% *
1)	Retirement benefits		70	221	671	962	38.3%
2)	Job security		73	278	506	857	34.1%
3)	Military related education/training	PC4	92	368	340	800	31.9%
4)	Military lifestyle		136	317	301	754	30.0%
5)	Off-duty education & training	IC1	81	299	353	733	29.2%
6)	Bonus or special pay	WE8	69	184	439	692	27.6%
7)	Medical or dental care for AD member		73	265	350	688	27.4%
8)	Medical or dental care for family		54	196	392	642	25.6%
9)	Pay & allowances	WE7	88	242	243	573	22.8%
10)	Location of present assignment	IC4	60	147	213	420	16.7%
11)	Work schedule	WE3	91	186	105	382	15.2%
12)	<i>Esprit de corps</i> /morale	PC1	51	141	176	368	14.7%
13)	Promotion opportunities	WE6	41	152	164	357	14.2%
14)	Civilian job opportunities		47	82	174	303	12.1%
15)	Base services		89	150	54	293	11.7%
16)	Base housing		70	139	82	291	11.6%
17)	Recognition of efforts	WE5	59	113	112	284	11.3%
18)	Leadership of immediate supervisor	PC8	35	111	138	284	11.3%
19)	Training/experience of unit personnel	PC5	39	118	106	263	10.5%
20)	Number/duration of TDYs or deployments	IC5	39	76	103	218	8.7%
21)	Leadership at unit level	PC9	29	85	101	215	8.6%
22)	Number of PCS moves	PC2	44	84	68	196	7.8%
23)	Spouse's career	IC3	25	42	78	145	5.8%
24)	Senior AF Leadership	PC10	18	50	62	130	5.2%
25)	Childcare needs	IC2	20	44	51	115	4.6%
26)	Equal employment opportunity		17	41	46	104	4.1%
27)	Additional duties	WE2	35	40	28	103	4.1%
28)	Unit manning	WE1	20	48	30	98	3.9%
29)	Unit resources	PC7	24	34	28	86	3.4%
30)	Enlisted evaluation system		10	31	27	68	2.7%
31)	Unit readiness	PC6	9	19	19	47	1.9%

\* Note: % = (total ÷ 2510)

The average factor rank-ordered list appears on the next page.

RANK	SEPARATION/REENLISTMENT FACTOR	Factor	Separation	Reenlistment	Average
			Rank	Rank	Rank
1)	Military lifestyle		3	4	3.5
2)	Pay & allowances	WE7	1	9	5
3)	Military related education/training	PC4	10	3	6.5
4)	Location of present assignment	IC4	5	10	7.5
5)	Civilian job opportunities		2	14	8
6)	<i>Esprit de corps</i> /morale	PC1	6	12	9
7)	Bonus or special pay	WE8	13	6	9.5
8)	Recognition of efforts	WE5	4	17	10.5
9)	Off-duty education & training	IC1	17	5	11
10)	Retirement benefits		23	1	12
11)	Work schedule	WE3	15	11	13
12)	Promotion opportunities	WE6	14	13	13.5
13)	Leadership at unit level	PC9	7	21	14
14)	Training/experience of unit personnel	PC5	9	19	14
15)	Medical or dental care for AD member		21	7	14
16)	Job security		28	2	15
17)	Number/duration of TDYs or deployments	IC5	11	20	15.5
18)	Medical or dental care for family		24	8	16
19)	Additional duties	WE2	8	27	17.5
20)	Leadership of immediate supervisor	PC8	19	18	18.5
21)	Base housing		22	16	19
22)	Unit manning	WE1	12	28	20
23)	Senior AF Leadership	PC10	16	24	20
24)	Number of PCS moves	PC2	20	22	21
25)	Base services		27	15	21
26)	Unit resources	PC7	18	29	23.5
27)	Spouse's career	IC3	26	23	24.5
28)	Childcare needs	IC2	29	25	27
29)	Enlisted evaluation system		25	30	27.5
30)	Equal employment opportunity		31	26	28.5
31)	Unit readiness	PC6	30	31	30.5

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## **Vita**

Captain Dan Smith was born in 1961 in Amarillo, Texas and graduated from Cal Farley's Boys Ranch High School, Texas, in 1979. He enlisted in the United States Air Force in November 1981 under the Delayed Entry Program and entered active service on September 3, 1982. While on active duty, he completed his Associate of Applied Sciences degree in Information Systems Management from the Community College of the Air Force in 1993, and his Bachelor of Science in Computer Studies from the University of Maryland, European Division, in 1995.

His first assignment was to the United States Air Force Academy in Colorado Springs, Colorado, where he served for almost 11 years as a computer operator, hardware and software technician, computer programmer, computer instructor, and computer security officer in the 1856th Communications Group. In August 1993 he was reassigned to the 762d Communications Squadron, Boerfink Mountain Top Kaserne, Germany, and a year later—due to base realignment/closure action—to the United States Air Forces in Europe (USAFE) Computer Systems Squadron, Ramstein Air Base, Germany, where he served as a newly promoted master sergeant as noncommissioned officer-in-charge of USAFE Intelligence Software Systems.

He completed Officer Training School in January 1996 at Maxwell Air Force Base (AFB), Alabama, and was assigned to the Space and Warning Systems Center, Peterson AFB, Colorado, as an Air and Missile Warning Systems Analyst. In January 1997 he took over duties as Air Mission Migration Program Manager for the Strategic Nuclear Deterrence, Command and Control Systems Program Office at Peterson AFB.

He joined the 27th Intelligence Squadron, Langley AFB, Virginia, in February 1999 as Section Chief, Network and Communications Management, and assumed duties as Flight Commander of the Distributed Common Ground Systems (DCGS) Processing, Exploitation and Dissemination System (PEDS) Operations Center (DPOC) in August 2000. He completed Squadron Officer School in residence at Maxwell AFB, Alabama, while assigned to the 27th Intelligence Squadron, and also deployed as Commander of the 48th Expeditionary Intelligence Squadron, San Vito Air Station, Italy, in the spring of 2001. In August 2001, he entered the Graduate School of Engineering and Management, Air Force Institute of Technology. Upon graduation, he will be assigned to Headquarters, Air Intelligence Agency, located at Lackland AFB, San Antonio, Texas.



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14. ABSTRACT Retention of valuable information systems (IS) personnel has become increasingly more difficult over the past decade, even during the current economic downturn (Information Technology Association of America, 2002). The United States Air Force (AF) also suffers from declining retention of its enlisted IS workforce. This research studies the job satisfaction-to-turnover intention relationship of AF IS workers through extensions to the Mobley et al. (1979) turnover model by assessing the effects of work exhaustion (Moore, 2000), interrole conflict (Hom & Kinicki, 2001), and perceived cohesion (Bollen & Hoyle, 1990) to determine if those with high work exhaustion, high interrole conflict, and low perceived cohesion report lower satisfaction and higher turnover intention than those with low work exhaustion, low interrole conflict, and high perceived cohesion. Current archival data from a portion of the AF IS workforce (AF Specialty Codes 3C0X1, 3C0X2, and 3C2X1; N = 10,535) was obtained from the AF Occupational Measurement Squadron that resulted in 2,510 usable responses. Partial support was found through contingency table analysis showing that job satisfaction is positively influenced by lower levels of work exhaustions and interrole conflict, and higher levels of perceived cohesion. Further research should be conducted to refine the posited turnover model for possible use throughout the AF, and should explore other contributing factors that adversely affect the job satisfaction-to-turnover intention relationship.					
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